

EVERYMAN'S
ENCYCLOPÆDIA
IN TWELVE VOLUMES

VOLUME FOUR
CHRISTIE'S—DENMARK

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EVERYMAN'S ENCYCLOPAEDIA

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NEW AND REVISED EDITION



LONDON AND TORONTO
J. M. DENT AND SONS LTD

MADE IN GREAT BRITAIN
BY J. M. DENT & SONS, LTD.

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CHRISTIE'S—DENMARK

LIST OF ABBREVIATIONS

ac., acres.	<i>i.e.</i> , that is.
A.D., after Christ.	in., inches.
agric., agricultural.	inhab., inhabitants.
ambas., ambassador.	Is., island, -s.
ann., annual.	It., Italian.
arron., arrondissement.	Jour., journal.
A.-S., Anglo-Saxon.	Lat., Latin.
A.V., Authorised Version.	lat., latitude.
b., born.	l. b., left bank.
B.C., before Christ.	long., longitude.
Biog. Dic., Biographical Dictionary.	m., miles.
bor., borough.	manuf., manufacture.
bp., birthplace.	mrkt. tn., market town.
C., Centigrade.	Mt., mts., mount, mountain, -s.
c. (<i>circa</i>), about.	N., north; northern.
cap., capital.	N.T., New Testament.
cf., compare.	O.T., Old Testament.
co., county.	par., parish.
com., commune.	parl., parliamentary.
cub. ft., cubic feet.	pop., population.
d., died.	prin., principal.
Dan., Danish.	prov., province.
dept., department.	pub., published.
dist., district.	<i>q.v.</i> , which see.
div., division.	R., riv., river.
E., east; eastern.	r. b., right bank.
eccles., ecclesiastical.	Rom., Roman.
ed., edition; edited.	R.V., Revised Version.
<i>e.g.</i> , for example.	S., south; southern.
Ency. Brit., Encyclopædia Britannica.	sev., several.
Eng., English.	Sp., Spanish.
estab., established.	sp. gr., specific gravity.
<i>et seq.</i> , and the following.	sq. m., square miles.
F., Fahrenheit.	temp., temperature.
fl., flourished.	ter., territory.
fort. tn., fortified town.	tn., town.
Fr., French.	trans., translated.
ft., feet.	trib., tributary.
Ger., German.	U.S.A., United States of America
Gk., Greek.	vil., village.
gov., government.	vol., volume.
Heb., Hebrew.	W., west; western.
Hist., History.	yds., yards.

ENCYCLOPAEDIA

C

Christie's, a world-famed art auction room in London. The full title of the firm is Christie, Manson, and Woods, of King Street, London. It is so celebrated that Mr. W. Roberts has thought fit to write the story of the house at great length in a book entitled *Memorials of Christie's*, published 1897. The most celebrated sale that ever took place there was that of the Hamilton Palace collection in 1882. It lasted for seventeen days, and the amount of money realised was £397,562. All along the history of this house there has been a succession of interesting sales. There was the Bernal collection in 1855, with a result of £70,954; the Bicknell pictures in 1863, with £58,639. The Manley Hall collection 1875-8 with £150,000; the Fountaine collection of 1884 with £96,200. In 1892 the Dudley collection of ninety-one pictures realised £99,564, also in 1892 there was the Magniac collection of works of art which brought in £103,040. Sir Julian Goldsmid's pictures, furniture, and china in 1896 resulted in £101,727. Sir John Pender's pictures sold in 1897 brought in £81,913; Sir T. G. Carmichael's works of art in 1902 realised £49,273; and the Huth collection of pictures in 1905 realised £50,452. At the Blyth sale of mezzotint engravings in 1901, a 'first state' of the 'Duchess of Rutland,' by Valentine Green after Sir Joshua Reynolds, realised the extraordinary price of 1000 guineas. The Duke of Cambridge's pictures, jewels, etc., realised £89,734 in 1904; the Orrock collection of pictures the same year fetched £65,946; and Lord Tweedmouth's collection in June 1905 brought in £49,548. In May 1905, 15,000 guineas was paid for a reputed Italian sixteenth century *biberon* in rock crystal. The value of Turner pictures has much increased during recent years, as in 1906 his 'Rape of Europa' realised 6400 guineas, while in 1909 his 'Mortlake Terrace' realised 12,600 guineas. This is about the highest price ever

paid for a landscape in England. The jewels of Mrs. Lewis Hill were sold in 1907, and fetched nearly £95,000, while 1650 guineas was paid for Sir Luke Fildes' 'Venetian Flower Girl' in her collection. This is the largest price paid in modern times for a picture by a living artist—though this figure was considerably less than the £4567 10s. paid for W. P. Frith's 'Dinner Party at Boswell's Lodgings,' sold during the life of that artist many years ago. In considering the records of prices realised at Christie's sales since the Great War, the depreciated purchasing power of the pound must be borne in mind. During the war art sales were naturally restricted, but a twelve-day sale by this firm in 1915 of objects of art realised over £37,000 for the Red Cross Society. The year following the war, 1919, was a boom year in art sales, and Christie's sales exceeded £3,000,000. This was in part due to the postponing of sales during the war, and in part to the 'new poor' selling to the *nouveaux riches*. This high figure has not since been exceeded, but in 1929 the money realised by the sale of pictures and drawings alone was the highest in Christie's annals. The largest amount received for one day's sale was on Nov. 6, 1919, when a second collection from Hamilton Palace was sold (*see above*). This fetched nearly £169,000, thus exceeding the record sale of £150,000 for two days made earlier in the same extraordinary year, the Drummond collection being disposed of on that occasion. The highest bid ever made for a single picture at C.'s was that made in Nov. 1919 for Romney's portrait of the Beekford children, which formed part of the Hamilton Palace collection. This realised £54,600, and it was the highest price for a picture sold in the public market. 52,000 gns. was the sum bid earlier in the same year for Sir Joshua Reynolds's 'Mrs. Siddons as the Tragic Muse.' At this figure the picture was bought

in, and it was disposed of privately in 1921, going with Gainsborough's 'Blue Boy' to an American purchaser for £200,000. One of the most interesting sales at Christie's in recent years for an *objet d'art* other than a picture was the offering for sale in 1929 of the Portland Vase, which for a hundred years had been lent by the Dukes of Portland to the British Museum. The £34,450 bid was the highest bid of that season, but the vase was bought in at that figure and returned to the Museum. See *The Years' Art*.

Christina (1632-89), Queen of Sweden, only daughter of Gustavus Adolphus and Maria Eleonora of Brandenburg, *b.* 1626. Her father *d.* in her sixth year. During her minority the chancellor, Axel Oxenstiern, directed the regency and instructed her in politics. Johannes Matthias educated her more as a boy than a girl, and every one held the highest opinions of her understanding and courage. In 1644 she assumed the sceptre, and impressed every one with her cleverness and good sense. Unfortunately she allowed her pride to rule her judgment, and showed herself so capricious and reckless that the country became anxious. Her treatment of the chancellor was unpardonable, and in her efforts to thwart him and his policy, she caused considerable harm and diminished materially the gains that Sweden should have obtained from the Thirty Years' War. She founded a national school of literature, and encouraged science and learning with great energy. She collected men of learning about her, but allowed her admiration of them to become too extravagant; thus at the death of Descartes, the Fr. philosopher, in 1650, she wished him to be buried at the feet of the Swedish kings and to build a magnificent mausoleum to his memory, which, however, was not permitted. She refused to marry, and the persistent importunities of the Senate, who were anxious about the succession to the throne, caused her to escape the difficulty by appointing Charles Gustavus, her cousin, as her successor. She became more reckless and wasteful, and unwise in her foreign policy. In 1654 she was persuaded to abdicate in favour of her cousin. The idea appealed to her imagination, that a queen in the prime of her life should voluntarily give up her throne, so a great ceremony took place at the castle of Upsala. She retired from Sweden, dressed as a man, and at Innsbruck she adopted the Catholic faith, having always held the Protestant religion in contempt. In 1655, she entered

Rome, again dressed as a man, and astonished the people by her extraordinary behaviour. The rest of her life was a series of adventures and scandals. She twice returned to Sweden in the vain hope of being received as queen again. She *d.* in Rome in 1689, quite poor and neglected. She is accused of ordering the assassination of Monaldeschi, her major-domo, in 1657. Her valuable library of MSS. was presented to the Vatican by Pope Alexander VIII. See *Lives* by P. W. Bain, 1890; J. A. Taylor, 1909.

Christine de Pisan (1361-c. 1430), a Fr. poet of Italian parentage. She married the secretary of Charles V. of France, her father being his astrologer. On the death of her husband in 1389, she had recourse to writing as a means of support for herself and three children. She refused invitations from Henry IV. of England and Visconti of Milan who offered her a home at their courts; for she already enjoyed the patronage of Charles VI. and the dukes of Berry and Burgundy. Her *Le Livre des faits et bonnes manieres du sage roi Charles* (1405) gives an interesting contemporary picture of Charles V. and his court, whilst in her *Livres des trois vertus* (1407) will be found a unique description of the domestic life of the time. In *La Fision* (1405) she tells her own story, and her *La Cité des dames* (1407) contains a valuable series of contemporary portraits. She was versed in the Latin poets, and assumed the championship of her sex in *Epître au dieu d'amour* (1399), as also in *Dil de la rose* (1402).

Christinehamn, a commercial tn. on the N.E. shore of Lake Wener, 25 m. E. of Karlstad in Wermland, Sweden. Pop. 11,514.

Christison, Sir Robert (1797-1882), a Scottish physician and toxicologist, graduated at Edinburgh and studied toxicology in Paris under the famous Orfila. From 1822 to 1832 he held the chair of medical jurisprudence in Edinburgh, and from 1829, when he pub. his *Treatise on Poisons*, still a standard work, and was appointed medical officer to the crown, he frequently gave professional evidence in notorious criminal cases. In 1832 he was promoted to the professorship of medicine and therapeutics, and in 1848 became physician to the queen. C. wrote also on the pathology of the kidneys (1839).

Christlieb, Theodor (1833-89), (Ger. theologian, was a native of Birkenfeld, Württemberg. He gave up his ministry at the Ger. Protestant Church in Islington, London, in order to take charge of a parish in Friedrichshafen by Lake Constance. Finally

in 1868 he accepted a professorship at Bonn. *Modern Doubt and Christian Belief* (1868 in the original) is the most widely read of his numerous writings.

Christmas (*Cristes masse*, the mass of Christ), the season in which the birth of Jesus is commemorated, the central point of the celebrations being C. Day, the supposed actual anniversary of the nativity of Christ, which is generally celebrated in Europe on Dec. 25. The beginning of the celebration of C. as a Christian anniversary cannot be exactly dated. Though some references are made to it as flourishing in the time of Telesphorus (A.D. 138-161), these are probably spurious, and the first certain mention of the festival is in the reign of the Emperor Commodus (A.D. 180-192); it is also spoken of in the third century by Clement of Alexandria. Diocletian, learning that a number of Christians were gathered together in a certain building celebrating the anniversary of the founder of their religion, caused the church to be ignited, and all the worshippers perished in the flames. The early church had no fixed time to celebrate C.; by some branches it was observed in May, by some in Jan., and by others concurrently with Epiphany. It is, however, certain that the time now fixed could not by any possibility have been the period of Jesus' birth, as December is the rainy season in Judæa. The choice of this season was probably due to the general recognition that the winter solstice was the turning-point of the year; all things seem to prepare then for a fresh period of life and activity after the winter sleep of death. Such a belief was general among all nations; the one which especially influenced the Christian church was probably the Roman festival of the winter solstice, celebrated on Dec. 25 (*Dies Natalis Solis Invicti*). The Celtic and Germanic tribes held the season of C. in veneration from the earliest times, and the Norsemen believed that personal evidence could be obtained of the existence and work of their deities at that time, as they were supposed to be present and active on earth from Dec. 25 to Jan. 6. Many other ancient beliefs and customs antecedent this period have been handed down to our times, and have crept into Christian usage. The lighting of the Yule log, a custom once widely prevalent but now fallen into desuetude, is an inheritance from Lithuanian mythological lore. The practice of decorating churches is pagan in its origin, and the mistletoe so widely used for that purpose was the sacred plant of the Druids. The custom of

presenting friends with gifts at C. dates back to the time of the ancient Romans. In Scotland, in the fifteenth century, the Yule celebrations lasted from Dec. 13 to Jan. 7. The latter date was termed Uh-halie Day, and within the period of the celebrations 'Yule Girth' was proclaimed over all the country, and the worst of miscreants enjoyed sanctuary, as no court had the right to punish them. The 'Up-hellya' of the Shetland Isles is a relic of this ancient custom. It was, however, the aim of the Christian church to ennoble and lift above their heathen associations all the customs that survived from bygone ages, and with this end their noble liturgy was framed, and many dramatic representations of the birth and early events in the life of Christ were instituted. Hence the so-called manger-songs, C. carols, special dishes for C., etc. During the Middle Ages and later, the various customs which were practised at C. time, and the legends associated therewith, were exceedingly numerous; most of them have now become obsolete, though the writings of Dickens revived the interest in them for a short time. There are several distinctive features still associated with C. The C. tree, a young spruce tree, still survives; it dates back to the Roman saturnalia, as is proved by Virgil's lines 'Oscilla ex alta suspendent mollia pinu' (*Georgics*, ii. 389). It was introduced into England from Germany in the reign of Queen Victoria. Father C., or Santa Claus, who is supposed to come down the chimney and place gifts in the children's stockings that are suspended by the fireplace, has a parallel in every European country. He is identified with St. Nicholas (the American name), Robin Goodfellow, Knecht Ruprecht, and the French Bonhomme Noël. St. Nicholas Day is properly on Dec. 6. C. as a social festival is undoubtedly observed with much less whole-heartedness than formerly. The festivities of the season were formerly kept up uninterruptedly for over a week; now C. Day and Boxing Day only are general holidays. The custom of giving gratuities to servants, etc., at C. is also Roman in its origin. The Romans named such gifts 'strenæ,' and they were called 'boxes' from the fact that boxes were hung up in church at C. time by the priests for offerings to be dropped therein for the poor and needy of the parish. These boxes were opened on the day after C. Day and their contents distributed; hence the day was known as 'boxing-day,' and by a common metonymy the gifts themselves came to be known as C. boxes. Public

servants formerly received C. boxes, but this was discontinued about 1840, and now postmen, municipal servants and tradespeople's employees are the only people to solicit such gifts. C. cards, now so universally used, were instituted in 1846, and the industry has grown enormously. Much advance has been made in the production of cards, and some really artistic productions can now be obtained. The Roman gladiatorial games at seasons of rejoicing have a modern parallel in football matches, which vast multitudes attend at C. time. From a religious point of view great importance is naturally attached to the commemoration of the birth of the founder of the Christian religion. The day is celebrated by special services in the Roman Catholic Church, and the priest is allowed to celebrate three masses on the same day, the first at midnight, the second at dawn, and third in the morning. In the Anglican Church, there is a special service, special psalms are sung, and the Athanasian Creed is recited. Most of the Nonconformist bodies also celebrate the day by special services, etc. In Scotland, C. is not kept as a special holiday, New Year's Day taking its place; the Presbyterian Church, therefore, has no special services for C. day. Hansel Monday, the first Monday of the New Year, is the equivalent of Boxing Day in Scotland, and in the more northerly parts of England. Consult *Christmas and its Associations*, by W. F. Dawson, 1901; *Brand's Popular Antiquities*, 1870; and A. Tille's *Yule and Christmas*, 1899; C. C. Polhill, *Christmas in Ritual and Tradition*, 1925.

Christmas Island: (1) An is., never more than 12 m. long and 9 m. broad, in the E. part of the Indian Ocean, 190 m. S. of Java. It is a British possession under the government of the Straits Settlement. It is the deposits of phosphate of lime, the result of the continuous action of the dung of sea-fowl on the chalk below, which give the island its one commercial value. It is the top of a submerged mountain, some 15,000 ft. high, of which 1200 ft. only rise above the surface of the sea. It was visited by Dampier in 1688 and was annexed in 1889. It was then uninhabited. Pop. 1043, employees of the Phosphate Co. (2) An island (with a 90 m. circuit) in Polynesia, Pacific Ocean, lies a little above the equator, S. of Honolulu. Discovered by Cook in 1777, it was annexed by Great Britain in 1898 with a view to laying the Pacific cable, of which Fanning Is. (to the N.W.) is a station. The exports are guano and mother-of-pearl. Pop. 42.

Christmas Rose, or *Helleborus niger*, also known as the **Black Hellebore**, is a species of Ranunculaceae which is a native of Europe and flowers in the winter. The leaves are evergreen, the rhizome is black—hence the second popular name—and the flower has at first a white or reddish-tinged calyx, but this becomes green after fertilisation has taken place. Despite the fact that the plant is ranunculaceous, the flower really bears considerable resemblance to a single rose, for there are five petaloid sepals and the stamens are numerous. Formerly the hellebore was considered to be of medical value in cases of mental derangement, but it is little used nowadays; it contains a property which renders it an acrid poison.

Christophe, Henri (1767–1820), a negro king of Haiti. Originally a slave of Grenada, he became a chief under Dessalines, Emperor of Haiti. After the latter's murder he established himself as king of the North. Civil war followed, but he was declared king in 1810. His cruelty caused a revolt, and to escape imprisonment he shot himself.

Christopher I. (1252–59), King of Denmark, succeeded his brother, Abel. He was obliged to make over the rich duchy of Schleswig to his nephew, Valdemar, thereby beginning the regrettable dissensions over the crown lands. When C. imprisoned his primate, Jakob Erlandsen, like a common felon, because of his devotion to the pope and contempt for his own authority, he was excommunicated, but sudden death (probably by poison) put an abrupt end to the dispute.

Christopher II. (1319–32), King of Denmark, made repeated attempts to secure the duchy of S. Jutland (Schleswig), which had fallen to a minor, Valdemar V. But the latter's guardian expelled him finally. However, when C. secured the recognition of Valdemar as heir to the Danish throne, he received the duchy, after promising that it should never be incorporated with Denmark. During his reign the royal prerogative was considerably curtailed, and the privileges of the aristocratic party strengthened. The virtual dissolution of the kingdom at his death into the Scanian prov., Schleswig, E. Denmark, and Jutland and Fünen, clearly demonstrates the weakness of his rule.

Christopher III. (1439–48), King of Norway and Sweden, besides Denmark. C. owed his accession to the Riksråd or Senate, not to the people. In his reign the peasants were downtrodden, and in Jutland, after their rising of 1441, were reduced almost to the condition of serfdom.

Christopher (1550-68), Duke of Württemberg, son of Duke Ulrich I., d. 1605. He completed the work of his father by converting his subjects to the reformed Protestant faith and establishing the Lutheran church. He introduced a system of church government, part of which still endures. He was a recognised protector of the Protestants throughout the religious wars of the period.

Christopher, St. (d. A.D. 250), the patron of ferrymen, was a great preacher of Syria, who converted, it is said, 48,000 people to Christianity, before he himself was finally martyred, after excruciating torture, during the persecutions of A.D. 250. His world-wide renown is due to legend rather than to fact. The representation of him in art with the infant Christ upon his shoulder is founded on a beautiful story, of which the following is a bare epitome. A little child once asked Christopher, who was of imposing stature, to carry him over a bridgeless stream. Staggering across, the bearer cried out against the strange heaviness of his load, but the boy replied: 'Marvel not, for with me hast thou borne the sins of the whole world.'

Christopoulos, Athanasius (1772-1847), a Gk. poet, studied at Buda and Padua, and from 1811 assisted Prince Caradja, hospodar of Moldavia and Wallachia, in making a code of laws for his country. When Caradja fell, he lived in retirement and composed his lyrics and drinking songs which earned him a wide popularity. Besides translating Homer and Herodotus into modern Gk., he wrote a political tragedy, *Politika Parallela*, on different forms of government.

Christ's College, a college of Cambridge University, England, founded in 1505 by Lady Margaret Beaufort, mother of Henry VII. On the site of C. C., previous to 1505, had stood 'God's House,' founded by William Byngnam in 1439. This was only a small college or hall, and Lady Margaret's endowment provided for a much larger foundation. Part of the building was refaced in the seventeenth century. The Fellows' building in the second court was partially built by Inigo Jones, and is a very fine example of the style. The garden is especially beautiful, having suffered least of all the college gardens during rebuilding or enlarging. The rooms once occupied by the foundress have been preserved with very little alteration. John Milton was a scholar here, and a mulberry tree said to have been planted by him still lives and bears fruit. Among C.'s famous *alumni* are Bishop Lati-

mer, John Leland, the antiquary, and Charles Darwin. The college is closely connected by exhibitions with schools in the N. of England.

Christ's Hospital (the Blue-coat School) was founded in 1550 by Edward VI. The original buildings were those of the monastery of the Grey Friars in Newgate Street, London. King Edward VI. gave a grant of money, and various charitable persons assisted, and it became richly endowed. It was at first devoted to orphans, and in 1553 was providing home and education for 400 children. The mayor and citizens of London were nominated governors in its charter. Thomas Guy, the founder of Guy's Hospital, endowed the school with £400 a year. In 1677 'parish children and foundlings' were excluded and only children of the freemen of the city were admitted. Several new regulations have been added from time to time, and children presented by governors are admitted to the foundation, also sons of naval officers. The dress of the boys has scarcely differed in style since 1550; they wear a long blue coat and knee-breeches with yellow stockings and white neck-bands, the only difference being that the yellow petticoat and flat blue cap have been discarded, and no covering for the head is worn. From time to time alterations were made in the buildings; in 1692 Sir Christopher Wren built the S. front, which is now destroyed. In 1902, the school was removed to new buildings at Horsham in Sussex, designed by Sir Aston Webb, and Ingress Bell: the building is on an entirely new plan for public schools, accommodating 700 boarders and 600 day scholars. The old buildings were destroyed, except a portion incorporated in the enlargement of St. Bartholomew's Hospital. The boys still retain the ancient name of Grecians and deputy Grecians for the two highest classes. The main school is divided into the Latin school and the mathematical school corresponding to the usual classical and modern sides. There are many university scholarships and exhibitions, and large sums are spent annually in apprenticeship for both boys and girls. Many distinguished men have been pupils at C. H., among these were Charles Lamb, Samuel Coleridge, Camden, Stillingfleet, and Leigh Hunt. The girls' school, also originally in Newgate Street, was removed in 1798 to Hertford, and now takes 350 boarders and 400 day scholars. Lamb's essay on C. H. gives a picture of the school in its old days.

Christ's Thorn, or *Paliurus aculeatus*, a species of *Rhamnaceæ* which

flourishes in S. Europe and in W. Asia. The shrub is common in Palestine, and is said to have provided the crown of Christ; the thorns are formed from the stipules. The name is applied for a similar reason to other plants, especially to *Zizyphus Spina-Christi*, another species of the same order with stipular thorns, related to plants which produce the fruit known as the jujube.

Christy, Henry (1810-65), Eng. ethnologist, was a director of the London Joint-Stock Bank, but from 1851, when his interest in ethnological questions was extraordinarily stimulated at the Great Exhibition, he freely gave his whole life to travel and research. From 1858 till his death he explored the caves in the valley of the Vézère in S. France, trying to deduce from the flint implements, etc., he found the antiquity of man in Europe. He published the results of his investigations, and at his death bequeathed to the nation his unique archæological collection, made in Scandinavia, Denmark, British Columbia, and Mexico, besides in France.

Chromatic Scale, in music, a series of semi-tones written with sharps ascending and flats descending, not involving a change of key, and arranged with accidentals.

Chromatic Thermometer, an apparatus for measuring temperature by observing the colour of the light radiated from a heated body. A heated body changes in colour from red to white as its temperature rises, and a comparison of the colour with a standard that gives an indication of the temperature.

Chromatophores, pigmented cells in the surface of plants and animals, whose function appears to be restricted to the production of colour for appearance sake. They are developed out of young cells which may become *leucoplasts* or starch-formers, *chloroplasts*, or chlorophyll cells with nutritive functions, or may be specialised to the production of pigment only.

Chromatype, a photograph on paper sensitised by salts of chromium.

Chrome Yellow (chromate of lead, PbCrO_4), a colouring material used in dyeing and as a pigment. It is found as a mineral in Siberia, in the Urals, Brazil, and the Philippines, under the name of crocoisite. It may be prepared by precipitating a solution of a lead salt with potassium dichromate. Different shades may be obtained by mixing with lead sulphate, which gives a lighter shade, or with chrome red, which gives numerous shades of chrome orange.

Chromic Acid (H_2CrO_4) is important

because of its salts, the chromates. It is liberated on adding to a concentrated solution of potassium anhydrous chromate a sufficient excess of sulphuric acid. The acid, when the solution is concentrated, loses water and deposits deep red crystals of chromic anhydride or chromium trioxide. The excess of sulphuric acid and potassium sulphate is washed out with nitric acid, which is then driven off by gentle heat. It is doubtful whether C. A. has really been obtained, but red crystals have been obtained by cooling a hot saturated solution of the trioxide which have been regarded as the acid. With sulphuric acid, C. A. acts as a powerful oxidising agent, and as such is much used in organic chemistry and electric batteries, while in botany it is used for dissolving intercellular tissue. The acid is used for dyeing in red and brown colours. C. A., however, is not so important as the chromates. In their production the native chrome-iron-ore, $\text{Fe}(\text{CrO}_4)_2$, is used. This is heated in the powder form with lime and potassium carbonate in a reverberatory furnace, where oxidation takes place and potassium and calcium chromates are formed together with ferric oxide. This is treated with water, and the chromates are thus extracted. For the production of the 'bichromate of potash,' or, more properly, potassium dichromate ($\text{K}_2\text{Cr}_2\text{O}_7$), which is used as a pigment, the solution of chromates is treated with sulphuric acid, and the potassium sulphate formed produces, by means of double decomposition, the potassium chromate and precipitates calcium sulphate. To convert the chromate into dichromate, a certain quantity of sulphuric acid is added to the solution. The bichromate forms large red prisms, and in solution gives a very poisonous acid solution. Lead chromate (PbCrO_4) is the 'chrome yellow' of the painter, and is of a bright yellow colour. It is found native in the mineral 'crocoisite,' and may also be prepared by precipitation from the chromate or dichromate by a lead salt.

Chromite, a mineral which forms the chief source of chromium and its compounds. It consists of chromium, iron, and oxygen, $\text{FeO} \cdot \text{Cr}_2\text{O}_3$, and is known as chrome-iron-ore, chromic iron, and chrome-iron-stone. It forms octahedral crystals, but is usually found in granular masses; its hardness is 5½, sp. gr. 4.5, and it is black or dark-brown in colour. It is found in ultra-basic igneous rocks, and is mined in California, New Zealand, Turkey, the Urals, and in the Shetland Islands.

Chromium (symbol Cr; atomic weight 52.1), a hard steel-grey metal belonging to the same chemical group as molybdenum, tungsten, and uranium. It is not found free in nature, but in chrome iron ore ($\text{Cr}_2\text{O}_3\cdot\text{FeO}$), crocoisite, and chrome ochre it is found very frequently. Many green stones, such as emerald and serpentine, owe their colour to its presence. The general methods of production are the reduction of the oxide by carbon in the electric furnace or its replacement by aluminium. Its chief industrial uses are in chromium-plating and in the addition of very small quantities to steel, which it renders hard and tenacious. The important salts are the chromates.

Chromosphere, the name given to the shell of luminous gas which surrounds the photosphere of the sun. When observed in its usual condition by the eye or the telescope, the sun is seen as a highly luminous disc with a sharp edge: this is called the photosphere. When, however, the eye cannot see the bright photosphere, as in an eclipse of the sun, its great luminosity does not mask the lesser luminosity of the C., which can then be clearly seen or photographed. The edge of the C. is, however, not regular, for there shoot out from it gigantic flame-like masses of luminous material called 'prominences,' which testify to the greatly agitated state of the sun's surroundings. With only the telescope, eye, and camera not much more information can be gained with regard to this peculiar atmosphere, but from the kinetic theory of gases we might deduce that the great temperature of the sun would give the molecules of its gaseous constituents enormous velocities which would enable them to go a long way from the sun before they were brought back by the gravitational force. The most fruitful method of study, however, is by means of the spectroscope, which has been applied to the purpose very successfully by Lockyer, Hale, Deslandres, and others. By its means the C. was seen to be composed of many elements in the gaseous states, particularly hydrogen, helium, and calcium, a line spectrum being observed in place of the continuous spectrum of the sun. It has been possible to photograph any portion of the C. and the prominences issuing from it, and it has been found that the prominences are associated with the sun-spots, or faculae, which reach the edge of the sun's disc, so that they are often the accompaniment of violent eruptions in the interior portion of the sun.

Chronicle (Gk. $\chi\rho\omicron\nu\omicron\varsigma$, time) denotes a history in which facts are

recorded according to the sequence of time. The oldest C. in English literature is the Anglo-Saxon Chronicle, part of which is, in fact, 'the oldest historical prose in any Teutonic language.' The Chronicle exists in seven different manuscripts, which are generally designated by the first seven letters of the alphabet. It is probable that the C. in part represents the work of King Alfred, and that much of it was written under his superintendence. The A or Parker MS. is the best authority for the earlier periods. The work of chronicling contemporary history was probably carried out by monks. Winchester, then the most important place in Wessex, being at first the centre from which the work was done. The events of Alfred's reign are written in a spirited style, but the account of events towards the end of the tenth century, when the work of chronicling was moved to Canterbury, is meagre. The A MS. carries the history down to the year 1071. The B MS. is fragmentary and a transcript of A. The C MS. was written from Abingdon, and extended to the conquest, B extending only to 977, and differing very little from C. The E or Laud MS. is of great interest. It was written probably in Peterborough and is full of patriotic spirit. It is the latest of all the versions, the last entries dating from 1154. In it is to be found the celebrated passage describing the sufferings of the country from the self-seeking, avaricious barons of Stephen's reign. For the most part the Chronicle is bare and scrappy, the briefest notices being given of deaths, coronations, the founding of monasteries, and the like. There are, however, some passages such as that relating to the tragic death of King Cynewulf in 755, which are written in a vivid, graphic style, and, occasionally, pieces of verse are inserted, of which the poem celebrating the battle of Brunanburgh is pre-eminently the finest. The Chronicle was printed as early as 1643, and has since been frequently reprinted and translated. The most important editions are: *Two of the Saxon Chronicles Parallel* (Oxford, 1865), edited, with an introduction by Prof. Earle; re-edited, with appendices and glossary, by Charles Plummer (Clarendon Press, 1892 and 1899); *The Anglo-Saxon Chronicle*, edited, with a translation, by Benjamin Thorpe (2 vols.), 1861. Consult *The Cambridge History of English Literature*, vol. i., 1907. Other Cs. of interest to the student of English literature may be briefly noticed. *The New Chronicles of England and France*, by Robert Fabryun (d. 1513), was published in 1516, and

related the history of England from the arrival of Brutus to the battle of Bosworth (1485). The standard edition is that of Sir Henry Ellis (1811). *Raphael Hollingshed's Cronycle*, published in two folio volumes in 1578, is of supreme importance from the fact that Shakespeare owed to it so much of his material for most of his historical plays, as well as for one or two others, such as *Cymbeline* and *King Lear*. John Stow (1525-1605) assisted in the continuation of Hollingshed's C., and himself wrote a *Summary of English Chronicles*, 1561. Sir Richard Baker's *Chronicle of the Kings of England* was written in Fleet Prison, and was published in 1641. Two books of the O.T. are called Cs., and are dealt with in a separate article.

Chronicles, the First and Second Books of the. The Hebrew name, *Divrai hay-yamim*, signifies 'events of the days,' whereas the Gk. of the Septuagint, *παράλειπόμενα*, means 'things passed over.' These two books of the O.T. form one book in the Hebrew Canon, and constitute a history of the Jewish people from the time of Adam up to the return from captivity. Some of the events recorded in the Second Book of Samuel and the Books of Kings are here repeated, and the narrative is continued in the books of Ezra and Nehemiah. Nothing is known of the authorship of C., except what can be deduced from internal evidence. It was written by some one who had Levitical leanings, and who apparently, from the language and syntax he used, lived about 330 B.C., or even later. It was therefore written at a time when prophecy had become extinct, and when every Hebrew was chiefly interested in Jerusalem, the history of the Temple, and all things that pertained to the theocracy of Zion. The early part of the history is contracted into the form of genealogies (1 Chron. i.-ix.). There are numerous omissions in the records of the reigns of David and Solomon (1 Chron. x.-2, Chron. ix.), only those things being mentioned which serve to prove God's goodness to those who obey the divine law. Accordingly, the sin of David, the revolt of Absalom, the idolatry of Solomon, etc., are omitted, as they do not serve the purpose of the author. Many details are given as to divine feasts, and offerings and services in the temple, which are not mentioned elsewhere. The author refers several times to the 'Book of the Kings of Israel and Judah,' to a *midrash* or commentary of the *Book of Kings*, and to the words of the prophet Jehu, and the vision of Isaiah. Modern scholars do not re-

gard very highly the historical value of C. The most useful commentaries are those by Bertheau and Benzinger. See Driver's introduction to the O.T., and Dr. Curtis in the *International Critical Commentary*, 1910.

Chrono-Chrome, the name applied by Messrs. Gaumont to their invention, which is the latest application of the study of colour-photography to the cinematograph. The pictures obtained by this process reproduce to the ordinary eye the perfect natural colours of the original subjects. With regard to plant and other still-life studies—notably butterflies—the pictures which have already been shown in London are marvelously beautiful, the varying shades and even the varying effect of light on iridescent surfaces being wonderfully displayed. The result is almost as good when views of processions or seascapes have been shown. C. pictures are produced without the aid of hand-tinting or any colouring by taking three pictures simultaneously through red, green, and blue-violet screens, and then throwing the three pictures in the same manner on to the stage screen, through similarly coloured screens. All shades of red, violet, and blue, and even a perfect white, are portrayed, although these are the colours which have proved almost impossible of reproduction before. They are described as 'pictures from the palette of the sun,' and the name is really appropriate as far as the lay mind can judge, although M. Gaumont himself says that improvements are possible.

Chronograms (from Gk. *χρόνος*, time, and *γράμμα*, a letter) were extravagant devices in fashion during the late Rom. empire and afterwards in the Renaissance period, whereby the date was indicated by certain letters in the inscription, written large to stand out. The reader would be obliged to rearrange the letters thus: ChristVs DVX; ergo trIVMphVs. This was stamped on a coin struck by Gustavus Adolphus in 1632 (MDCXVVVVII.).

Chronograph, an instrument by which the length of a period of time is recorded. Strictly speaking, there should be a distinction between the meanings of the words *chronoscope* and C. The former should apply to instruments which allow the extent of passage of time to be seen by reference to a dial or other indicator, while a C. should possess an apparatus for making permanent records of certain desired periods. A stop-watch is therefore a *chronoscope*, and a watch or clock provided with a stylus capable of tracing lines pro-

portionate in length to the corresponding periods of time would become a C. Cs. are usually constructed to indicate very short periods with great accuracy, and for this purpose the ordinary clock mechanism is unsuitable, as any error within the period of its escapement can be introduced. Cs. of various forms are used for astronomical purposes, for estimating high velocities, for measuring certain physiological phenomena, and even for determining the finish of a horse-race. The essential parts of a C. are a pendulum or other mechanism for indicating solar time, a stylus or recorder which can be applied promptly at the beginning of the period and released at the end, and a moving surface on which the record is made. Instead of a pendulum or clock, actual time may be indicated by the vibration of a tuning-fork, to one of the prongs of which a light stylus is fixed. When the period of the tuning-fork's vibrations has been ascertained by comparison with mean solar time, it is possible to indicate small fractions of a second by the number of vibrations in a period. The moving surface is generally cylindrical in form, and smooth enough to offer little resistance to the stylus. The surface is graduated by lines at right angles to the direction of its motion, and it is obvious that the greater its velocity the more graduations will be covered in a given period and the more possible it will be to ascertain small fractions. The stylus is in most cases applied and released by breaking or establishing an electrical circuit. In the Bashforth C. for determining the velocity of shot, there are two recorders: one is controlled by an electro-magnet in circuit with a clock, the other forms a circuit with a series of screens placed at known distances apart. When the shot passes through a screen, it displaces a weight which breaks the circuit, which is then almost immediately automatically re-established through the second screen; it is again broken by the shot, again re-established, and so on to the end of the series. The length of a second as indicated by the one recorder is represented by 18 ins. and the interruptions in the other record, therefore, lead to an accurate determination of the time spent by the shot in traversing the distances between the screens. Cs. are also used to indicate the period of transit of a star, to estimate the velocity of sound, and to measure accurately certain muscular movements, when the stylus may be moved by the muscle itself. For physiological uses of Cs. see Stirling, *Outlines of Practical Physiology*.

Chronology (Gk. χρόνος and λόγος, discourse, account), the science of computing and adjusting time, or periods of time, in order to ascertain the true historical sequence of past events and their exact dates. C. differs from history in that it recounts events purely with regard to their order in time and without taking into account their relation to each other. Time has from the beginning been measured astronomically, according to the revolutions of the sun and moon and to recurring celestial phenomena. The natural divisions of time are the day and night, a larger division being the lunar month. Barbaric races have generally reckoned their time by means of lunar months, without thought of dating events from a fixed epoch. The early civilised races, however, regulated their time from a fixed epoch, each choosing a great event in its national history from which to date all other events, both prior and subsequent to it. The epoch universally adopted in modern times is the birth of Christ, the years before it being marked *b.c.*, and those after it *A.D.* (*Anno Domini*). This method of dating events was first practised by Dionysius Exiguus about 533 *A.D.* The first era made use of by the Gks. was that of the Olympiads. The Olympic Games were held every four years, so that an Olympiad was reckoned as a period of four years. The epoch from which the Gks. reckoned time was the victory of Coræbus in the first Olympic Games, held in Elis, and calculated to have taken place in the year 776 *b.c.* The Gk. historian Timæus, who lived in the reign of Ptolemaeus Philadelphus (283-245 *b.c.*), was the first to reckon by means of Olympiads, and his method was followed by other Gk. historians. The Nabonassar era owes its name to the founder of the Babylonian kingdom, and is said to have been used from the time of its origin, Feb. 26, 747 *b.c.* This era was adopted by Hipparchus and Ptolemy, and was used by astronomers because its calculations were based on celestial phenomena. The Rom. era dated from the foundation of the city of Rome, which is generally accepted, from the computation of Terentius Varro, as 753 *b.c.* Verrius Flaccus, however, placed it a year later, whereas M. Porcius Cato gave it as 751 *b.c.*, Polybius as 750 *b.c.*, and Fabius Pictor as 747 *b.c.* The years were denoted by the letters A. U. C., *anno urbis condita*, 'in the year of the founding of the city.' Another common method of reckoning among Latin historians was by the annual consulships. Not infrequently both

Calchas, the seer, revealed the cause of the god's anger, Achilles, on the demand of Agamemnon, the king, was obliged to restore C. to her father, but insisted on receiving Agamemnon's slave, Briseis, in compensation. Homer in his *Iliad* tells the disastrous sequel to the strife which thus arose between the two champions of the Greeks.

Chryselephantine (Gk. χρυσός and ἑλέφας, ivory), the adjective used to describe the gold and ivory statues of the Greeks, by far the most famous of which were the colossal Zeus at Olympia and Athena in the Parthenon of Pheidias. A development from wooden images where flesh was painted white and drapery gilded, these C. statues were built up on wooden or clay cores, by attaching thin plates of ivory (to represent flesh tints) and gold. The preciousness of the materials amply accounts for the non-survival of any illustration of this art.

Chrysididae, a family of insects, in the series *Aymenoptera Tubulifera*, consists of near allies of the true wasp which are called popularly ruby-wasp or golden-tailed flies. They are brightly-coloured creatures with wings moving so swiftly as to make them invisible, and in habit they are parasitic in the nests of bees and wasps. *Ch. ignita* is a common British species.

Chrysippus (c. 280–206 B.C.), a Gk. philosopher, and one of the leaders of the Stoic school of philosophy, b. at Soli in Cilicia. He came to Athens and studied under Cleanthes. His skill in argument and his impartiality and reasonableness earned him the name of the 'Column of the Portico' (Stoa). He saved the doctrines of the Stoics from extinction. He wrote 750 treatises, of which only fragments survive; some of them are preserved in the MSS. found at Herculaneum.

Chrysis, a genus of hymenopterous insects, is typical of the Chrysididae, or ruby-wasp family. The adult wasp lays her eggs in the nest of other species, and the larva feeds upon the young insect which it has supplanted. The C. is a brilliantly-coloured and very active creature.

Chrysobalanaceae, one of the sub-orders of the natural order Rosaceae, formerly considered to be a distinct natural order. Warming, however, has classed it as a sub-order of Rosaceae, a position it now usually holds. The sub-order contains the typical genera *Livertella* and *Chrysobalanus*. The species are tropical trees and shrubs, often bearing the name of plum. *C. Icaco*, the cocoa plum, is a native of the W. Indies,

where the fruit is considered to be a delicacy.

Chrysoberyl, a crystallised mineral, generally of a green colour, translucent, and having a vitreous lustre and conchoidal fracture. Sp. gr., 3·8; hardness, 8·5. It consists of alumina, 77·0; gneina, 17·5; protoxide of iron, 5·0; other matters, 0·5. A few specimens are met with uncrystallised. It is found mostly in Ceylon and Brazil. When the green is very pale it is often called oriental chrysolite. It crystallises into six-sided crystals.

Chrysochlora, a genus of Diptera established by Latreille, belongs to the family Stratiomyidae. In colour the insects are golden-green, or black and yellow, in build they are large and stout, and the countries they frequent are tropical.

Chrysochloridae, a family of insectivorous mammals containing a single genus with about half-a-dozen species known as Cape golden moles. The *Chrysochloris* has mole-like habits, and its eyes are covered with skin, but it has only four digits on its fore-paws, while the mole has five. It has no tail, and the ears lack pinnae. *Ch. Capensis*, the Cape chrysochlore, has a velvety fur of metallic colour, burrows underground, and feeds on worms and insects.

Chrysocolla, an ore of copper, being the hydrated silicate of that metal. It is of a bluish colour, and found in large quantities in the Mississippi valley and in smaller quantities in Cornwall and Cumberland.

Chrysocoma, a genus of composite plants, is indigenous to S. Africa. *C. tinctoria* is rarely found in limestone cliffs of Britain; the plant is fleshy with yellow flowers.

Chrysodon, the name given by Oken to some annelids which are now included in the genus *Amphitrite*.

Chrysolite ('golden stone'), a mineral of pale greenish colour, crystallising in right rectangular prisms. It is a silicate of magnesia and protoxide of iron, the formula being $2(\text{Mg}\cdot\text{Fe})\text{O}\cdot\text{SiO}_2$. It is mostly used in jewellery, and is occasionally found in rounded masses, but usually as a constituent of basalts and lavas. The common form of the mineral is olivine, which is of an olive green or brownish colour. The crystals are positively doubly refractive.

Chrysoloras, Manuel, or Emmanuel (c. 1355–1415), one of the chief introducers of Gk. literature and learning to W. Europe, b. at Constantinople; he studied under the philosopher Gemistus, and was sent in 1383 by the Emperor Manuel Palæo-

logus to Italy to beg for help against the Turks. On his return he was invited by Florence to reside in the city and teach Gk. Here he lived for three years, travelling much in Italy, his translation of Plato and Homer becoming famous. He went on an embassy to Germany in 1413 to fix on the place where the approaching general council of the church was to meet, and he represented the Gk. Church in the train of John XXIII. at Constance where he *d.* suddenly. His printed works are two only: *Erotemata*, a Gk. grammar, and *Epistolæ de comparatione Veteris et novæ Romæ*.

Chrysomelidæ, a large family of coleopterous insects, consists of a smallish and brilliantly-coloured species. The fat little grubs and the perfect beetle are both vegetarian in diet, and many are destructive to crops. The well-known Colorado Beetle (*q.v.*) is a species which feeds on potatoes.

Chrysophane, a variety of scyberite, and very similar to clintonite, of a reddish-brown colour. It occurs in foliated masses.

Chrysophrys, a genus of the Spariæ or sea-breams, contains acanthopterygious fish which inhabit warm and tropical seas. *Ch. aurata*, the gilt-head, is an hermaphrodite species which has been found off our coast, but usually frequents the Mediterranean.

Chrysophyllum Cainito, or the Star-apple, is a species of Sapotacæ which grows in the W. Indies and is valued on account of its edible fruit. The plant is a moderately-sized spreading tree, and the fruit abounds in a sweet milky juice which flows copiously when it is beginning to mature. The flowers grow in small purplish bunches, and are succeeded by a round fleshy smooth fruit resembling a large apple; the inside is divided into ten cells, each with a black seed, and the pulp is white or purplish. When cut across the seeds present a stellate figure, whence the name.

Chrysoplenium, a genus of Saxifragacæ, occurs in mild countries. its species being herbaceous plants with pale green flowers. *C. alternifolium* and *C. oppositifolium* are natives of Britain, and are called golden saxifrages.

Chrysoprase, a mineral variety of chalcedony used as a precious stone, more particularly on the Continent. Its principal constituents are, of course, crystalline and amorphous silica combined to give differential effects; but the fine apple-green colour is given by the presence of nickel oxide.

Chrysops, a genus of Tabanidæ, con-

tains several species of flies known by the ominous name of cleg or gad-fly, and noted for their large and beautiful green-gold eyes. The insects are small, being about one-third of an inch long, but they are large enough to cause considerable irritation when indulging in their blood-sucking propensities. *C. cæcutiens* and *Ch. relictus* have an unenviable notoriety.

Chrysostom (Gk. χρυσόστομος, the golden-mouthed), **St. John Chrysostom** (c. 345-407), one of the great fathers of the Christian Church, also known as John of Antioch, *b.* at Antioch. He attended the school of the sophist Libanius, and showed such remarkable powers of mind that he would have succeeded his teacher as the head of the school had not the influence of his mother and many Christian friends persuaded him to be baptised, about A.D. 370. For ten years he lived in the desert, studying theology, but his austerities led to a severe illness, and he returned to Antioch, where he was ordained. After another ten years' strenuous work in Antioch he was made Archbishop of Constantinople, and became one of the most famous preachers of the age. His knowledge of human nature was keen and deep, and his eloquence made him as many enemies as adherents. His sermons in St. Sophia were directed not only against the Arians but even more against the licentiousness of the Imperial court and the idleness and vice of the innumerable monks who thronged the city. The Arians at this time had no place of worship and met at night outside public buildings, where they sang hymns expounding their doctrines. To counteract their influence on the orthodox, C. arranged a system of nightly processional hymn singing, the first example of hymns combined with a service. Riots ensued and much bloodshed, the Empress Eudoxia's chief eunuch being slain. In order to condemn C., Theophilus, Bishop of Alexandria, summoned a synod which met at Chalcedon through fear of the fury of the people of Constantinople, who were the ardent supporters of their archbishop. He refused to appear, was condemned on the charge of Origenism and contumacy, and was removed to Nicæa in Bithynia. The fury of the populace was so aroused that he was hastily brought back to Constantinople, but two months later he was once more exiled, this time to Cucusus in Cilicia. From here he wrote many of his greatest sermons and letters, and planned missions to the Persians and Goths. His vindictive enemies then secured his removal to the far desert of Pityus, and on his

way there he *d.* Fresh riots broke out in Constantinople at the news of his death, and peace was not finally restored until his bones were brought back thirty years afterwards. His festival in the Gk. Church is on Nov. 13, in the Latin Church Jan. 27. The prayer of St. C., that stands last but one at the end of Matins, Evensong, and the Litany in the English Book of Common Prayer, is taken from the Liturgy of St. Chrysostom. His works are voluminous, and nearly all have been preserved. See *Oxford Library of the Fathers*: and *Lives*, by W. R. W. Stephens, 1871; R. W. Bush 1885; and A. Pouch (Paris), 1891.

Chrysostomus, see **DION CHRYSOSTOMUS**.

Chrysothrix, the genus of squirrel monkeys, belongs to the family Cebidæ (*q.v.*). It consists of four species, all of which are arboreal, insectivorous, and gregarious; the long tail is non-prehensile and the face is small.

Chrzanow, a tn., 25 m. W. by N. of Cracow, in Poland. Pop. 11,500, equal numbers of Jews and Poles.

Chu, a riv. some 570 m. in length, in Turkestan, Asiatic Russia. Rising in the Tian Shian Mts., in the W.S.W. of Lake Issyk-kul, it is first known as the Koshkar. Passing within 3 m. of Issyk-kul, it swerves into the gorge of Buam, and leaving Tokmak behind flows on towards Lake Saumulkul, disappearing in the desert 125 m. before reaching it.

Chüanchow-fu (called **Chinchew** by the British), an anct. port and walled city in the prov. of Fu-kien, China. There being now a great sandbar across the harbour mouth, Chinchew has been outstripped in trade by the port Amoy, whilst it now despatches its own exports—tea, sugar, china-ware, and tobacco—from Nganhai. The most famous bridge in China connects Chinchew with its suburb, Loyang. Marco Polo and other travellers mention Chinchew as carrying on a large traffic with Europe in the Middle Ages.

Chub, the name of several carp-like fishes, in the large family Cyprinidæ, is applied in Britain to *Leuciscus cephalus*. In N. America, however, it is given to the near ally, *Leucosomus corporalis*, and to fishes of the genus *Ceraticthys*.

Chubb, Charles (*d.* 1845), a locksmith, improved the 'detector' lock, which his brother had originally patented in 1818. After managing a hardware business with 200 hands in Wolverhampton, he went to London, where he set up a factory for burglar and fire-proof safes of his own patent in 1835.

Chubb, Thomas (1679–1746), an

Eng. deist, *b.* at East Harnham, near Salisbury, the son of a maltster. Apprenticed to a tallow chandler, he educated himself on the death of his father in 1688, theology being his favourite subject. In 1715 he wrote *The Supremacy of the Father*, followed by several other theological works. C. is interesting as representing a popular form of deism, and as showing the hold that rationalism had taken on the popular mind. His works also include *The True Gospel of Jesus Christ*, *The Discourse of Miracles*, *Discourse concerning Reason*.

Chubut, a territory in S. Argentina, bounded on the N. by Rio Negro, on the E. by the Atlantic, on the S. by Santa Cruz, and on the W. by Chile. Connected by rail with Puerto Madryn on the Bahía Nueva, it is nevertheless the difficulties of transportation that hinder further development. Rising in the Andes, the Riv. C. flows straight across to the Atlantic. The Senguerr discharges into Lake Collnapi, other lakes of size being La Plata and Fontana in the Andean highlands, and Musters in the interior. Save for the fertile, forested valleys on the Andean border the whole country is an arid pebble-strewn waste, clothed with stunted vegetation. Nevertheless, there is a Welsh colony near the C. mouth, with Rawson as its capital and Madryn (44 m. distant) as its chief port. Total area, 93,427 sq. m. Pop. 23,000, of whom 15,000 are at Rawson.

Chüching-fu, or **Kiutsing-fu**, a well-fortified city 7½ m. E.N.E. of Yunnan-fu, in the prov. of Yunnan, S. China.

Chudleigh, a tn. in Devonshire, England, 8 m. S.W. of Exeter. In 1807 it was almost destroyed by fire, but was rebuilt. It is noted for cider. Pop. 1869.

Chudleigh, or **Chidley**, a promontory on the N. coast, at the entrance of Hudson Straits in Labrador, Canada.

Chufut-Kaleh, a deserted tn. 2½ m. E. of Bakkehi-Sarai in the dist. of Simferopol and the government of Taurida, Russia. Perched on precipitous and well-nigh inaccessible cliffs, 1835 ft. above sea-level, it was in the fifteenth century the refuge of the Karaite Jews from the Crimea. Between C. and Bakkehi-Sarai is the Uspenskiy monastery, clinging like a limpet to the cliff face.

Chuguyev, a tn. on the r. b. of the Northern Donets, 24½ m. E.S.E. of Kharkov, in the prov. of Kharkov, Russia. Pop. 13,311.

Chu-hsiung-fu, a tn. 77 m. W. of Yunnan-fu, in Yunnan, China.

Chukchi ('Men,' or the Tuski, 'Confederates'), a people dwelling in scattered groups along the Arctic

shores between the Behring Straits and Kolyma R. in N.-E. Siberia. Nordenskjöld, who first studied this curious tribe during his expedition of 1878-79, came to the conclusion that their language resembled Koryak, not Eskimo, and sums up his discussion of their racial characteristics by saying that they bear 'an unmistakable stamp of the Mongols of Asia and the Eskimo and Indians of America.' The C., who are divided into the poor 'Fishing C.,' with fixed homes, and the comparatively well-to-do and nomadic 'Reindeer C.,' who breed great herds of reindeer and live on their milk and flesh, are tall and lean, with thick lips, coarse lank black hair, and puffy cheeks which often completely wrap in the nose. Peace-loving, good-natured, and affectionate, by their custom of 'kamitok' they allow sons to kill their parents, for future life, they say, is reserved for men slain by violence. Ostensibly Christians, they practise polygamy, and are victims of their own superstitious faith in mountain and other spirits.

Chulmleigh, a mkt. tn. 2 m. from Eggesford station and 14 m. S.E. of Barnstaple in Devonshire, England. Pop. 1143.

Chumbi Valley, the natural approach to Tibet from British India, up which the British expedition to Lhasa in 1904 advanced. Flanked by Bhutan and Sikkim, it lies on the southern slopes of the Himalayas at an elevation of 9500 ft.

Chumbul, or **Chambal**, an unnavigable river (514 m. long) of Central India, rising in Málwa, near Mau, and joining the Jumna, W. of Cawnpur.

Chunam, the Indian name for quicklime, made from very pure limestone or from calcined shells. It is used as an ingredient for plaster, when it is well mixed into a paste, together with fine river-sand and 'jaggery' (coarse sugar). It is also wrapped up with small pieces of boiled betel nut in the leaf of the betel vine. This mixture is commonly chewed among Orientals as a masticatory.

Chunar, see CHANAR.

Chunchos, **The**, a savage people who dwell in communal houses and live by hunting in the forests E. of Cuzco, Central Peru. They are an independent tribe of S. American Indians, not unlike the Antis. But the term C. has also been referred to one of the three aboriginal peoples of Peru.

Chunchuses, a warlike tribe of marauders, dwelling in certain parts of Manchuria and Mongolia. In the Russo-Japanese War, the Japanese were suspected of bribing these free-

booters to wreck the railroads. They disown the suzerainty of China.

Chungking, the commercial cap. of the prov. of Szechuen and of the whole of W. China. It occupies the end of a high rocky bluff at the junction of the R. Kialing with the Yangtze, and is surrounded by a stone wall in good repair. There are many fine shops and streets. The exports are yellow silk, wax, hides, wool, hemp, feathers, etc., and Chinese medicines, but trade has been crippled of late by brigandage in the interior. With the walled city of Kiang-Peh-Ting now incorporated in C. and the large villages near, C. is estimated to contain a pop. of about 800,000.

Chunian, a tn. in the Punjab dist. of British India, 45 m. S.S.W. of Lahore. Pop. 10,300.

Chupanga, or **Shupanga**, a vil. of Portuguese E. Africa, on the r. b. of Lower Zambesi R. The scenery is beautiful, but the district malarial. The wife of Livingstone, the explorer and missionary, was buried here (1862).

Chupra, see CHAPRA.

Chuquisaca, or **Charcao**, a dept. in Bolivia lying between the Andes and the Paraguay R., forming the S.E. corner. The capital town is Sucre. It covers an area of 26,400 sq. m. Pop. 330,000.

Chuquisaca, or **Sucre**, the cap. of Bolivia, S. America. Situated 9343 ft. above sea-level, it enjoys a particularly mild climate, and has a fine cathedral and a university. Pop. 29,686.

Chuquito, **Chucuito**, or **Chucuyto**, a prov. of Peru, also cap. of this prov., 12 m. from Puno, on W. of Lake Titicaca. There are silver and gold mines, woollen manufactures, dyeing of vicuña wool. Prehistoric remains have been found. Pop. 5000.

Chur, see CORRE.

Chura, a feudatory state of Kathiawar, Gujarat, India; also capital of same, 56 m. from Cambay. Pop. 5500.

Church History, the history of the Christian church and religion, dealing not only with external matters such as its extension and its political and social relations, but also with its inner development in doctrine, ritual, and ceremonial. C. H. is divided into three main periods: *Ancient*, usually dated to the end of the pontificate of Gregory the Great (A.D. 590), but carried by some to Charlemagne's foundation of the new empire (A.D. 800); *Medieval*, which closes with the Reformation; and *Modern*, from the Reformation to the present day. It is impossible here to give even a sketch of these three periods, but reference will be made to many works

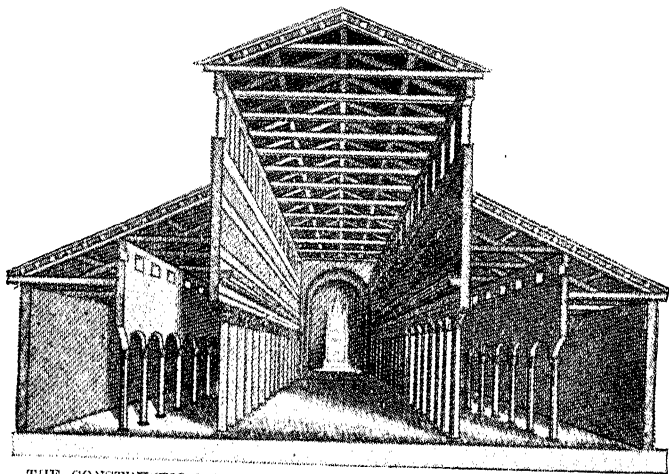
covering the whole or part of the field. Here we shall deal only with the development in the treatment of C. H. Our earliest documents consist of the books of the N.T., and various scraps of information contained in the letters and writings of the early fathers. In the second century, Hegesippus, a Jewish Christian, compiled some memoirs of the early days of the church, but only a few fragments remain. Eusebius of Cæsarea, who wrote in the early part of the fourth century, is known as 'the father of the church history.' He gave an account of the church of the first four centuries, and his work was continued in the next century by Socrates, Sozomen, and Theodoret. All these were produced in the E., whence no important church historian but Nicephorus Callistus in the fourteenth century has arisen since. Rufinus translated Eusebius' *History* into Latin, and fresh continuations were made by Theodorus Lecttor, Evagrius, Theophanes, etc. A translation of the works of Socrates, Sozomen, and Theodoret was made by Cassiodorus in the sixth, and this compound work known as the *Historia Ecclesiastica Tripartita*, formed the mediæval text-book on the subject. Among other early names may be mentioned Sulpicius Severus, Jerome, Idatius, Prosper, Victor Tununensis, Isidore of Seville, Gregory of Tours, Bede, and Paulus Diaconus. In the later Middle Ages, the chief names are those of Haymo of Halberstadt, Anastasius, Ordericus Vitalis, and Otto of Freising. The greatest, however, is that of the Dominican, Antoninus of Florence (archbishop, 1446-59), whose work is often modern in its aspect. Since the reformation there has been a steady stream of histories, at first largely polemical. The *Magdeburg Centuries* was a Lutheran attempt to show the primitive nature of Protestantism, and called forth the *Annales Ecclesiastici* of the Rom. Catholic Baronius, who was later followed by Natalis Alexander, Bossuet, Tillemont, etc. The scientific and critical era of church histories began with the Ger. Mosheim, who was followed by Schröckh, Semler, Planck, and a host of others. The names of Neander and Baur rank with that of Niedner, and mention must be made also of Hagenbach, Schaft, Ritschl, Möller, Möhler, and Von Hefele. Har-nack's *History of Dogma* also bears on the subject. See CHURCH.

Church, derived from the Gk. word *κυριακόν* (*δαμα*), meaning 'the Lord's House,' from *κύριος*, 'lord,' or 'master.' Other forms of the word are seen in the Swedish 'kirka,' the German 'Kirche,' the A.-S. 'circe,'

and the Scottish 'kirk.' Its original meaning, therefore, was limited to the place of assembly and worship but, like numberless other words of common usage, which have been adopted from a classical into modern European tongues, its sense has expanded with the development of new thoughts and customs. Thus 'church' may be applied also to a Christian sect, to the clergy, or to the whole community of Christian people, and it is interesting to notice the word 'ecclesia' (from Gk. *ἐκκλησία*, 'assembly') has undergone an exactly contrary transformation, being now applied to the building rather than to the body of Christians (cf. Welsh *eglwys* and Fr. *église*). Inasmuch as the structure of the place of public worship or C. is indissolubly bound up with the development of ritual, dogma, and organisation, it has been thought well to preface this article with a brief sketch of the history of C. architecture. It was in the fourth century that Christianity was officially adopted as the religion of the Rom. empire, and it was natural that C. architects should seek inspiration from some existing architectural type. This they found in the basilica, which must therefore be regarded as the basis of all C. architecture. The magistrates were accustomed to sit in the apse of the basilica, separated by the 'cancelli' (the 'bar' or 'lattice') from the litigants and common people, who stood facing them in a long 'atrium' or 'open court' at the W. In the embryo C. the officiating priests occupied the apse in the E., and sat with their backs to the high altar in the presbytery, looking towards the congregation gathered in the court, now called the nave. The 'cancelli' exercised an incalculable influence in completely cutting off the clergy from the laity and so augmenting the dignity of their sacerdotal functions. In the E. this lattice developed into a screen of sacred paintings which effectually hid from the laity the supreme act of the Holy Eucharist. The 'bema' or choir, which was simply an inclosure between the presbytery and the nave, arose from the need of greater accommodation for clergy and singers, and later was further augmented where it was necessary to seat a large body of monks. The chancel—that is, the choir and the sanctuary, which was the portion of the apse especially railed off for the priests—was divided from the nave by a structural arch, a screen, or steps, and sometimes by all three. The two pulpits or 'ambons' on either side of the choir, from which the Gospels and Epistles were read to the assembled

worshippers, may still be seen in the basilica C. of San Clemente in Rome. There is some doubt as to the exact origin of the cruciform Cs., although the popular belief that they were always meant to be symbolical of the Cross of Crucifixion assuredly accounts for their speedy adoption in mediæval Cs., for in the dark ages the love of symbolism amounted to a passion. In the E. the popularity of the dome led to the erection of Cs. in the shape of a Gk. cross with one central and four smaller domes over the arms of the cross. It is easy to see how desire to accentuate the cruciform figure and faith in the efficacy

to the apse in the chancel, the Knights Templars usually built their Cs. round, in imitation of that of the Holy Sepulchre in Jerusalem. But the Reformation and the later spread of Nonconformity and Puritanism altered C. architecture and decoration so as to suit the needs of what men now conceived to be the ideal form of service and worship. The mediæval builders had made their cathedrals a magnificent embodiment of that somewhat materialised literal Christianity, the highest expression of which is found in Dante, and had therefore embellished the walls with great paintings representing scenes from



THE CONSTRUCTION OF AN EARLY CHURCH ON THE BASILICA PLAN

of the altar sacrifice together tended to the extension of the N. and S. arms, which grew into the transepts of the great Gothic cathedrals, for these side aisles offered a splendid opportunity for subsidiary chapels and altars where masses might be sung. It early became the custom to build the chief of these chapels, that dedicated to the Blessed Virgin, and known as the Lady chapel, behind the high altar in the E., and the increased love of ritual and pageant induced architects to continue the nave and chancel aisles between the high altar and the Lady chapel, so as to form ambulatories—an arrangement which contributed much to the dignity and picturesque scope of processions. Though the circular form was almost invariably confined

to the O.T. and N.T. and episodes in the lives of the saints, had set everywhere sculptural figures of the Virgin, the apostles, the saints, and Christ, and had freely depicted in pictures the terrors of hell and the majesty of heaven, whilst outside they delighted in carving hideous gargoyles to typify the expulsion of all demons from the house of God. Moreover, the wealthy religious houses had vied with one another in erecting spacious and splendid edifices to the greater glory of God, with small regard to the needs of the congregation or the neighbourhood of towns. But with the rise of Protestantism, a mighty iconoclastic wave swept over Europe, and cathedrals and Cs. were ruthlessly stripped of all their adornment save their stained glass. In truth the substitu-

tion of the Bible for the Mass was almost the death-blow of C. architecture as a fine art. The Renaissance had already led to a disastrous imitation of anct. and especially of Gk. models, and now 'the new religion' was responsible for the growth of Cs. of the so-called conventicle type. In these the auditorium where the congregation sits is merely a great hall with a gallery running round three sides, whilst on a dais at the E. end is set the pulpit from which the minister addresses his people without being separated from them otherwise than by his platform. Cs. are designated metropolitan, cathedral, conventual, collegiate, and parish, according to their status, size, and importance, but difference in name does not imply a difference in structure. In modern times Cs. are frequently built in imitation of Romanesque, and especially of Gothic models.

Church Discipline (*Disciplina ecclesiastica*) is the means by which the Christian church deals with any of its officials and members, who, by serious immorality or other dishonour, have fallen completely away from the Christian standard of living and visibly and palpably stained the purity of a common spiritual life. In the days of the apostolic fathers the practice, which St. Paul had encouraged in his Cs., held good—that is, the local ecclesia were entirely responsible for the behaviour of its members. The accepted doctrine was that if any man will not listen to the Church when it expresses on any moral issue the teaching of Jesus Christ, he is *ipso facto* self-excommunicate, having rejected the final and supreme court of appeal. When, however, Christianity was finally and openly adopted into the great Rom. empire, the Church ceased to consist of separate and independent societies of 'saints,' and these latter were obliged to sacrifice their anct. prerogatives one by one, including discipline, and to pass gradually into a state of 'spiritual pupillage' to that great unifying body whose highest representative the Pope was soon to be. During the period of persecutions under Decius the alarming increase of apostasy led to stringent rules for the restoration of the 'lapsed' rules which were not superseded till the end of the fourth century. From the fifth to the seventh century inclusive, what now seems the extraordinary custom of public penance was in force. The enrolment of sinners into the rank of penitents took place during Lent. Penitential canons regulated the time during which the sinner must remain

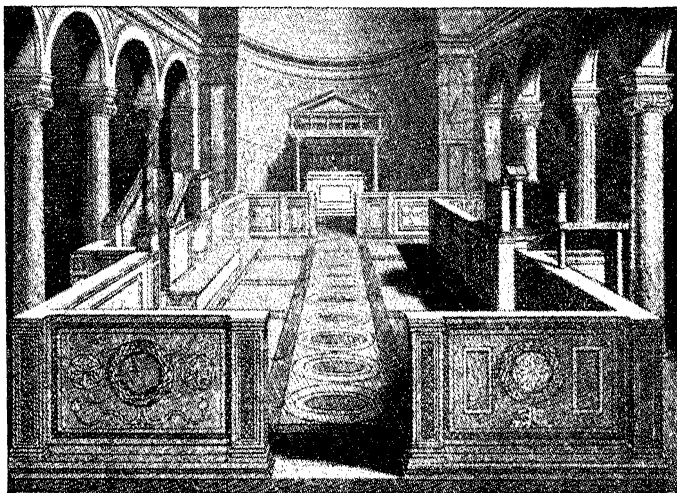
in the several grades of weepers, hearers, prostrators, and standers, whilst their readmission within the pale of the Church usually occurred in Holy Week. As regards the treatment of the 'lapsi,' various opinions obtained among the different sects. The Novatians believed that forgiveness of those who had fallen away from faith rested only with God, whilst the Montanists insisted that a sinner once under the ban of his Church must remain *in statu penitentiae* for the remainder of his life. The dreadful humiliation of public penance accounts for its disappearance by the eleventh century. Before that date it had become hopelessly abused. For letters of recommendation (*libelli pacis*) often secured the restoration of penitents, and the vicious system of commuting penance for taxes appeared as early as 550. Out of this system, and also from the doctrine of purgatory, which received its fullest expression in the time of Gregory the Great, grew the fatal theory of indulgences. But the most effectual weapons of the mediæval Church were Excommunication and the Interdict. The greater excommunication, which can only be pronounced by the Pope and his bishops, deprives the individual of all civil and social intercourse besides all the ordinances of religion. Lesser excommunications do not involve exclusion from communion and fellowship other than religious: Whole communities and countries were set outside the pale of the Church by the interdict—a supreme penalty which caused unwarranted suffering in England during the reign of King John. Calvin, who, unlike Zwingli, was opposed to the surrender of all ecclesiastical power to the state, advocated the retention of the *discipline de l'excommunication*. It was because Geneva refused to sanction his proposals that Calvin was driven into banishment in 1538. Yet in 1541, on his return, Calvin triumphed, and henceforward a consistory or council of elders was established in every parish of the Reformed Church—a chief function being the exercise of disciplinary authority over the congregations. In the seventeenth century, notwithstanding that penance had been formally abolished, evildoers were wont to make satisfaction publicly on the 'Stool of Repentance,' and for grave transgressions against ecclesiastical law it was the fashion in Ayrshire, as late as 1781, for the penitent to stand in a public part of the C., dressed in sackcloth, to signify his contrition. The kirk-sessions can still pronounce 'the lesser excommunication,' by which

the offender is banned from all 'sealing ordinances.'

Bibliography.—A. J. Carlyle, *The Church*, 1902; W. E. Gladstone, *Church Principles*; Goulburn, *Holy Catholic Church*, 1873.

Church, History of the, may conveniently be divided into three epochs, Ancient, Mediæval, and Modern. The first period reaches from the death of Christ to the foundation of Charlemagne's empire (800), the reign of Constantine forming a dividing line; the second extends to the Reformation, being divided

greater Italy were persecuted because they practised a *religio illicita* (an unlawful superstition), but it is certain that the secluded, narrow lives of the early Christians, with their whole being engrossed in the secret preservation of their new religion, led them to magnify to an inordinate degree their persecutions under Nero (64) and Domitian. It should here be noted that the fall of Jerusalem, about this time (70), must be held an inestimable boon to Christianity, in that it finally freed it from the oppressive fetters of



THE CHANCEL OF S. CLEMENTE, ROME, SHOWING THE AMBONS ON EITHER SIDE

at the supremacy of the papacy under Innocent III.; and the last may be subdivided by the Treaty of Westphalia, which closed the Thirty Years' War. The Pentecostal assembly of the apostles (33 A.D.) may be regarded as the seed of the Catholic Church. Here the disciples received the fullest conception of their mission as preachers of the Resurrection and the great Messianic gospel of their Master. During his missionary travels from 40 to 58 A.D. Paul began the huge task of evangelising the Gentiles, and he, more than any other, must be revered as the founder of Christian theology. As the Romans only appreciated a state religion, the humble and despised Christian sects of the metropolis and

Judaistic legalism. Up to the days of Decius persecution was purely spasmodic and ineffectual, whilst with Hadrian and Antoninus Pius the Christians, who were regarded as a negligible factor, enjoyed considerable toleration and protection, being allowed to form themselves into funeral associations and poor men's guilds. But from 250, when the Catholic confederacy, with its hierarchical constitution and systematised worship, seriously menaced the whole military and religious policy of the empire, the emperors instituted universal massacres which continued till the abdication of Diocletian in 305. This last made desperate but futile efforts to exterminate the whole Christian faction.

At last, with the advent of Constantine in 313, came peace; for Constantine, who himself on his deathbed received the holy baptism, extended to Christianity all the privileges and rights that hitherto Paganism alone had enjoyed. But it was not until the accession of Theodosius the Great (379-95) that Christianity was finally adopted as the one and only religion of the state. Meanwhile, since the early years of the third century the conversion of the heathens in the East—that is, in Arabia, Persia, and Armenia, and on the N. and W. confines of Rom. rule—had been making continual headway,

times there was one bishop attached to each church, but if he were away, it is easy to see how natural it was for his duties to devolve on the presbyters, several of whom were frequently appointed to each community. Ordinarily, however, the presbyters constituted the bishop's council, and the deacons his assistants merely. But as early as the third century diocesan began to supplant congregational bishops, or, in other words, the principle of centralisation was put into action whereby a number of churches were entrusted to the care of one bishop, usually a bishop in a large town, who alone



so that before the great migrations of the fourth century the Goths and Teutonic invaders were already Christian. In Persia and elsewhere political persecution and later the force of Islamism wiped out all traces of Christian proselytes, but in the West the effect of the barbaric invasions was to endue the Christian bishops with much of that social and moral power formerly wielded by the Rom. officials, so that the Church came naturally to be regarded as the heir to all the majesty and influence of anct. Rome. There emerge in the second century three officials connected with the Christian ecclesie, namely, a bishop, presbyter, and deacon, whose functions at first were patriarchal—that is, they administered charities and punished offenders against Church discipline. In earliest

times there was one bishop attached to each church, but if he were away, it is easy to see how natural it was for his duties to devolve on the presbyters, several of whom were frequently appointed to each community. Ordinarily, however, the presbyters constituted the bishop's council, and the deacons his assistants merely. But as early as the third century diocesan began to supplant congregational bishops, or, in other words, the principle of centralisation was put into action whereby a number of churches were entrusted to the care of one bishop, usually a bishop in a large town, who alone

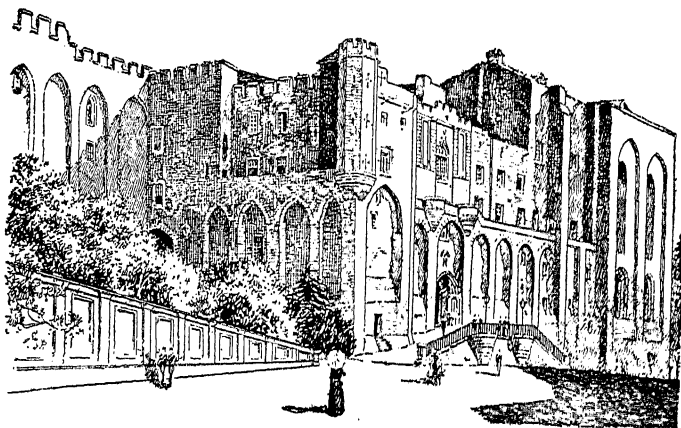
could ordain, and as whose representatives the presbyters only could conduct worship in the several churches. The creation of metropolitan bishops and finally of the papacy was a natural outcome of this process of centralisation. By the metropolitan system, the Bishops of Ephesus, Carthage and Arles, etc., exercised authority over many churches of neighbouring provinces, whilst the Bishops of Rome, Constantinople, Antioch, Alexandria, and Jerusalem exercised a still wider jurisdiction, and early became known as the patriarchs. The mediæval doctrine that the Church was the ultimate authority on all questions, temporal as well as spiritual, received a mighty support from Augustine's *De Civitate Dei*, wherein the author maintained that the unified Christian

Church was the kingdom of God, and accordingly was supreme over all nations here on earth. Upon this theory, too, was based the papacy—that is, the supreme authority of the Bishop of Rome as Christ's vicar in this world. Christian doctrine, as embodied in the prayer books, took centuries to evolve, yet within a few years of Christ's death men's minds were agitated by questions of faith and belief, and bitter controversies rent asunder the smallest Christian gatherings. The struggle with Gnosticism in the second century helped immeasurably towards the clearer definition of Christian theology. For an apostolical scriptural canon, our New Testament was drawn up, as also an apostolic rule of faith which forms the germ of the present Apostles' Creed. Above all, the doctrine of apostolic succession was promulgated—that is, that the bishops alone are qualified and inspired to interpret and expound the teaching of the Apostles, of which, indeed, they are the sole inheritors. Montanism (170) was essentially an outcry against the growing secularisation of the Church. It was in connection with this controversy that the first Church synods were held. The first general or oecumenical council of the whole Christian community was held at Nicæa in 325, and from that time forward it became customary to call such a representative gathering whenever grave doctrinal difficulties arose. These synods and councils have a twofold importance: they were invaluable aids towards the principle of unification, and they laid the foundation stones of Christian orthodoxy. At the Nicæan Council the Godhead of Christ received official sanction and official expression in the Nicene Creed, whilst at the Council of Chalcedon (451) an attempt was made to find an answer to that long-debated problem, 'What is the relation between the divine and human nature of our Lord?' From the decisions of these two councils and that of Constantinople (680) the doctrine of the Trinity, adopted by both the Western and Eastern Churches, was explicitly formulated. The broad tendencies noteworthy in the mode of worship during this period are the elaboration of ceremonies and the rapid increase in their importance; the completer severance of the sacerdotal functions from those of the laity and the augmented dignity of the priests, and, finally, the contamination of Christian doctrine with Pagan legend and especially the intrusion of the rites of the Gk. mysteries into the celebration of the

Holy Eucharist. A doctrine which was deemed a pillar of early Christian theology, was that the Church was the one ark of salvation, outside of which none could be saved. Thus to attain everlasting salvation a man must undergo baptism to release him from the Devil and to generate in him a new spiritual nature, and, further, he must continually fan to life the divine force waning in him by feeding his soul on the body and blood of Christ in the Holy Communion. It is quite impossible within the limits of a short article to outline, even in the simplest form, the thousand conclusions arrived at by the early theologians. The reader is therefore referred to the copious writings of the apostolic fathers, in whose works will be found an explanation of the countless schisms which oppressed the infant Church, such, for instance, as the 'Origen' controversy (394-438), the Apollinarian (362-81), and the Nestorian (428-44). To take up the thread of the external history of the Church at the eighth century—there were at that time two great forces which seemed likely to swamp Christendom, namely, Mohammedanism and the idolatry of the Saxons and other barbaric hordes. But the Gallic conqueror, Charles the Hammer, by his victory at Tours in 732, effectually put a stop to the inroads of the Saracens in the West, whilst a stubborn warfare of thirty-two years (772-804) at last enabled Charles the Great to subjugate the Saxons, their conversion to Christianity being accomplished by the building of towns and castles and the foundation of missions and monasteries. With the Christian religion once firmly established, the mediæval history of the Catholic Church resolves itself into an account of the rapid consolidation of the papal power and of its eternal struggle with the Holy Roman Empire and other European kingdoms for temporal as well as spiritual supremacy, and, further, into an account of the movements for reform which arose from the Church itself, and also of those wider and more influential strivings after a purer religion and worship which took firm root in the hearts of men throughout the Christian world. From 730 there was persistently spread from the Vatican the fable that Constantine had given the guardianship of the Catholic Church and State to the Bishop of Rome, but an event which in actual fact contributed far more than this fable to the confirmation of the Pope's authority was the final severance in 1054 of the Western

from the Eastern Church. The Monophysite (484-519) and other schisms had much to do with this rupture, but its real cause was the refusal of the Bishops of Constantinople to submit in any way to the Roman see. It was, of course, the great monastic orders, such as the Benedictines, Dominicans, and Franciscans, which, in particular, kept burning during the dark ages the flickering flame of the lamp of anct. science and culture. From the fourth century onward, monasticism had continually gained new ground: men of religious fibre gladly sought solitude or communion with kindred spirits, that in peace they might develop their

or Gregory VII. as he was then called, one of the noblest bishops Rome ever had, secured at Canossa the complete humiliation of Henry IV., but the vexed question of lay investiture, which also formed the substance of the quarrel between Becket and Henry II., was not finally settled till 1122. It was probably during the reign of Pope Innocent III. (1198-1216), that the papal power attained the summit of its glory, but up to the death of Boniface VIII. (1303) its supremacy was almost unquestioned, for the four crusades (1095-1202) had greatly enhanced its reputation, besides materially assisting its welfare. Nevertheless,



THE PAPAL PALACE, AVIGNON

higher life. The conventual life, indeed, was a revolt against contemporary society, with its wars and lusts and manifold corruptions, and it was ever a bulwark of the Church. Thus from the monastery of Cluny, founded in 910, there passed out to the world what were known as the Cluniac reforms directed towards the reorganisation and cleansing of the Church, and above all towards its final emancipation from state control. Yet, in spite of new orders, reformed clergy, and the work of such churchmen as Gerbert, Lanfranc, and Anselm, evils like the marriage of clergy, simony, and the selling of indulgences and benefices grew apace. But for a time the Papacy triumphed. From 1048 to 1243 Europe was tormented by the famous struggle between Pope and emperor. In 1077 Hildebrand,

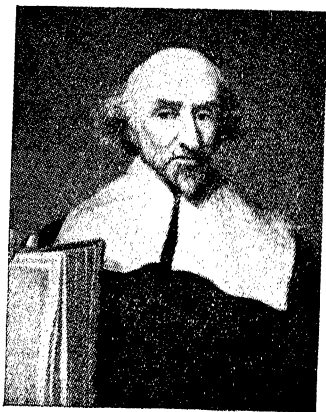
in the light of modern history, the struggle between Pope and emperor was a fatal disaster, for the former, by stirring up the Italian cities against the latter, postponed for centuries the consolidation of the Ger. states into a united kingdom. The practice of countless pious frauds, the growth of corruption within the Church, the Babylonish captivity when the Popes stayed in France (1305-77), and above all the schism (1378-1409), during which there were rival Popes at Rome and Avignon, finally disabused men's minds of that fine conception of a world church and a world empire mutually indispensable and working in harmonious accord. Thinkers revolted against the servile conclusion of scholasticism that religion and philosophy, even though contradictory, might both be true, as also

against the ruthless persecutions of the Waldenses and Albigenses (1207 and 1229), and later of the Hussites and Lollards. The horrors, too, of the Spanish Inquisition began to sink deep into the popular conscience and to fill men with bitter resentment against the Papacy. It seems natural, therefore, that with the Renaissance there should come also the great Reformation to open up a new era in Church history. As the direct outcome of the preaching of the religious leaders Luther, Zwingli, Melancthon, and Calvin, Protestantism was established in opposition to the older Christian Church, which still acknowledged the Pope as its head, and which from this time forth became known as the Roman Catholic Church. It was left to the Protestant delegates to the Council of Trent (1545-63) definitely to set forth those new doctrines, such as the priesthood of all believers and the absolute authority of the Bible in matters of faith, which left no loophole by which the two could ever be reunited.

Church of England.—In England Henry VIII. was recognised by parliament as 'the only head in earth of the Church of England,' and during the reign of his son, Edward VI., the Common Prayer book was drawn up through the good offices of Cranmer, Latimer, and Ridley—a compilation which, with its thirty-nine articles of faith, has ever since remained the criterion of Christian orthodoxy in the English Church. Lutheranism, which flourished in Scandinavia and Germany, was too conservative of monarchical principles and Romish ceremonies to retain a lasting hold in other European countries. Here, and especially in S. Germany, Switzerland, Scotland, and the Netherlands, the Calvinistic or Reformed Churches sprang up; for in these the congregations were organised on a thoroughly democratic footing—an arrangement which recommended itself to men of radical leanings, whereas the rigidity of its intellectual doctrine appealed to men of sterner mould and in general to the less passionate character of the colder North. In Germany it was only after the Peace of Westphalia (1648) that Protestants other than Lutherans won freedom of worship. The reaction against Protestantism, or the Counter-Reformation as it is called, was led everywhere by the order of Jesuits. Beginning in Bavaria (1563), it swept through S. Germany, and appeared in its most virulent form in France during the sixteenth century, but did not finally die down till after 1650. From the Reformation onward the history of the

Christian Church cannot be set forth in any connected narrative, for the simple reason that, whereas hitherto the Catholic Church with the Pope at its head had been a great river with which all other streams of thought could be connected, the main channel is now divided into endless branches, no longer linked by an all-embracing central organisation, but having Christianity alone, and that in its broadest sense, as a common basis. The complete disruption of the Catholic Church was finally achieved by the growth of a new theory, which gave rise to the so-called Free Churches, but which had played no part whatever in the great Reformation. Dissidents from established religious communities, eager to find some logical apology for their dissent, promulgated the doctrine that the Catholic Church was no actual and material organisation, but rather a spiritual association of all the 'faithful' throughout the world. Moreover, according to this doctrine every man is justified in seceding from one sect or church and in forming or joining another, there being no such thing as schism between Christian bodies. Hence arose that enormous multiplication of sects which is so striking in America and in other countries of comparatively recent origin. Some attempt will now be made to trace the development of a few of these. Puritanism in England dates from 1567, and may be described as an attempt to subvert the episcopal system and to remove those rituals and ceremonies which still savoured of the 'odious' Papists. The formal confession of the Puritans, offshoots of whom were the Baptists and Friends, was drawn up by the Westminster Assembly in 1643-49. Under Charles II. Episcopacy replaced Independency, and Nonconformists were persecuted by a series of Acts, including the Act of Uniformity (1662). Latitudinarianism, which grew up within the Anglican Church in the seventeenth century, was an attempt to steer a middle course between the Churchmen and Puritans, whilst Deism was a futile attempt to reconcile Christianity with that philosophy and natural science which were then attracting so much serious attention. English Methodism was founded in 1739, after its leaders, Wesley and Whitefield, had been driven from the Anglican Church. They developed no new doctrine, but aimed rather at a deeper realisation of the spiritual life, and were forced by the action of the Church to organise a new sect—a course certainly against their natural inclination. Methodism spread rapidly

among the poorer classes, and twenty years after Wesley's death embraced 100,000 members. The Evangelical party, whose stronghold was Cambridge, was the direct outcome of the reaction of Methodism on the Established Church; it numbered among its adherents some of the greatest Churchmen of the day. About 1833 the Tractarian movement emanated from the High Church faction in Oxford; no doubt it was largely stimulated by the contemporary revival at Cambridge. This religious phase has been well described as an æsthetic development



JOHN KNOX

from the so-called Romantic movement in poetry and art. Whilst one result of it was to send Newman and many others over to Rome, Pusey succeeded in establishing with the remnant an Anglo-Catholic Church within the Church of England. The Anglo-Catholics were affiliated to the Roman Church in ritual and doctrine but refused all allegiance to the Pope. Finally there grew up the 'Broad Church' party, who counted Kingsley, Dr. Arnold, and Dean Stanley among their chief lights. Though they were all loyal supporters of the Anglican body, these men urged a wider liberty in the subscription of creeds and in the interpretation of dogmas, and whilst minimising the importance of ceremonies and vestments and of the evangelical doctrine of sovereign grace, were insistently anxious to preserve the unity of their Church. The above is the crudest outline of what followed the Reformation in

England. In Scotland the national character and the personality of Knox gave the movement a different and peculiar development. The confession of faith sanctioned by the Scottish parliament (1560) followed swiftly on the covenant signed by the Scottish nobility who were then known as the 'Lords of the Congregation.' It was useless for Mary to try to restore Roman Catholicism, or for James I. to attempt to foist Anglican dogmas on an unwilling people. The Presbyterian constitution was drawn up in 1592, and the Solemn League and Covenant of 1638 was an effectual remonstrance against the introduction of the liturgy. The 'Relief' and 'Secession' churches left the Established Church as a protest against the continuance of patronage and the *laissez faire* attitude of the General Assembly. In 1843 the Non-Intrusionists—that is, those who held that no minister must be 'intruded on' an unwilling congregation—separated to form the Free Church of Scotland, whilst four years later the 'Relief' and 'Secession' churches coalesced and adopted the name of the United Presbyterians. In Ireland an overwhelming majority has always been Catholic, the Protestants being chiefly confined to Ulster. The glaring injustice perpetrated by James I., who handed over the whole ecclesiastical endowment of this country to Anglican clergy, was eventually remedied by the Irish Church Act of 1869, which arranged for the disestablishment of what is always known as the Church of England in Ireland.

An Act of Parliament, disestablishing the Church in Wales, was delayed from becoming operative by the outbreak of the Great War, but after final revision and amendment in 1919, came into operation in 1920. The post-war period was marked by many interesting movements, in the mission centres and foreign branches of British and American churches, designed to secure a greater degree of efficiency and unity, and to prevent overlapping of effort. In 1927, the English Church in India, while still recognising Canterbury as its mother see, became practically an independent organisation. The most drastic events of post-war Church history were those that took place in Russia. From the time when the Soviet Government disestablished the Russian Church in 1918, the experience of Christian believers, Orthodox or Nonconformist, in that unhappy country were of the most distressing nature, as each succeeding year brought new persecutions and punishments for those who attended places

of worship. In 1929, Atheism was recognised by statute as the state attitude toward religion, and only those who avowed themselves atheists were permitted the legal right to teach their beliefs. Church buildings were seized as the property of the state and provision was made that any group of twenty citizens might lease a church from the state. Religion was entirely banished from the teaching in schools, though teaching religion in private was still permitted. In spite of the severity of the new Acts, the churches opened as usual and the services drew large attendances; a condition of things that led to such an outbreak of persecution as the rest of Europe has hardly known for centuries. This serious threat to religious liberty caused a number of earnest protests and entreaties to be sent to the Soviet Governments in which Roman, Protestant and Nonconformist Churches of other countries united with the Greek Church in their endeavour on behalf of their fellow-Christians in Russia. During the period in review, a proposed revision of the Church of England Prayer-book caused much debate, not only in that body, but also among Nonconformists. A Bill to authorise the use of a revised version was defeated in Parliament. Other notable discussions of the time centred on the effects of modern scientific conclusions on religious belief, particularly in America, where anti-science groups adopted the title of 'Fundamentalists' (*q.v.*).

Church in Germany.—Pietism and Moravianism are two important issues from the orthodox churches of Germany. Spenser and Francke, Pietist leaders, founded their *collegia pietatis* (1670) and *collegia philobiblica* respectively, and Halle soon became the heart of the new Church, just as Geneva had been of Calvinism—a heart from which arteries carried the new religious ideals to many foreign countries. Moravianism, as it was preached by Zinzendorf, was merely a development from Pietism, both religions laying stress on the necessity of the closest fellowship between every member and Jesus Christ, and giving prominence to the doctrine of regeneration and sanctification rather than that of justification by faith. Deism, to which reference has already been made, blossomed anew in France.

Church in France.—Here it found many adherents during the reign of Louis XIV., and was afterwards metamorphosed by the *encyclopédistes* into what was known as Atheism, and also into the religion of Materialists. During the stormy years of the

Great Revolution the most daring and unparalleled experiments were made in the field of religion as of politics, but these experiments, according to Hase, only served to prove beyond possibility of doubt not only the necessity of religion for a civilised people, but also the national indispensability of a church.

The broad tendency to be noted in the Roman Catholic Church subsequent to the Reformation is towards Ultramontanism—that is, towards the recognition of the Pope as the infallible head of the Church, a title actually given by a Vatican council to Pope Pius IX. and his successors. Thus, where any doctrine is in question or under dispute, the final and supreme decision as to whether that doctrine bears the true Catholic stamp or, in the words of the famous canon, is 'quod semper, quod ubique, quod ab omnibus creditum est,' rests with the Pope. It was largely owing to the Jesuits, whose influence waxed great in the nineteenth century, that the Papacy was forced into this extreme position.

Greek Church.—As regards the Gk. or Orthodox Church, which grew out of the Eastern Church, the reader is referred to the special article on that subject, but it cannot with propriety be completely neglected in this present abstract. Although the capture of Constantinople by the Turks (1453) doomed the Gk. Church as a political force, its spiritual ascendancy still remained paramount in spite of the fact that its four patriarchates were continually threatened with submersion by the inroads of the Mohammedans. Yet its activity was arrested when it fell under Turkish rule, and abroad it numbers few proselytes. The Patriarchs of Constantinople, Antioch, Jerusalem, and Alexandria have equal authority, and decide all questions of doctrine and worship. In spite of the efforts of Melancthon, Crusius, and the renowned Lucarius—all apostles of reform—the Gk. Church remained almost indifferent to the gospel of Reformation. But, like the Western Church, it has again and again suffered from a process of disintegration, the most important branches being the Ethiopian Church of Abyssinia, the Jacobites of Syria and N. Africa, the Armenians of European and Asiatic Turkey, the Maronites, and the Nestorians. The Orthodox Gks., before the Russian Revolution, were numerically strongest in Russia, but are found in all the Balkan states, besides Turkey in Asia. Uniats are members of the Gk. Church who wish to heal the differences between scattered and dismembered sects and communities,

and who therefore acknowledge the papal supremacy. The churches of Georgia and Montenegro obey the Russian synod; the churches of Rumania and Serbia style themselves autocephalous; those of Greece and Bulgaria are independent, the latter acknowledging the supremacy of an exarch.

See Möller, *History of the Church*; Weingarten, *Zeittafeln und Uebersblicke zur Kirchengeschichte*; Hardwick for the Church in the Middle Ages; Guizot, *The Church in 1861*; Leslie, *Uses of Ecclesiastical History*; Stanley, *Three Lectures*.

The Church in the United States.—The early history of the Church in the U.S.A. is bound up with the struggle between the Puritans, many, if not most, of whom were hostile to control from England, and the clergy sent out from the latter country. Prior to that period, the Jesuits sent out missions to America, though the first missionaries in the New World were Franciscans and Dominicans. The work of the Jesuits was more effective than that of the earlier missionaries, who were unable to keep in touch with Indian converts of nomad habits. The Jesuits took care to concentrate their converts into settlements, these converts so far as the U.S.A. are concerned, being Indians of the Spanish possessions of California. The more striking Jesuit successes, however, were won in Canada and on the Amazon. In Quebec the first Jesuits arrived in 1611, and began mission work among the Indians in 1615, continuing their labours until they were expelled in 1764, after having in the meanwhile endured almost incredible hardships from cold, squalor and the indifference of their converts. The forests of N. America, in what was then New France and subsequently became Canada, were, indeed, the scene of the most heroic Jesuit missions in the whole history of the Church, and names like that of Champlain, who made the first permanent settlement (1609), are famous in Canadian history.

As has been often said, the greatest achievement of the Puritans was the settlement of New England, where, in their new world 'they redressed the theological balance of the old.' Throughout these earlier years, following the pilgrimage of the *Mayflower*, there was a bitter conflict between the Separatists and those who still regarded the Church in England as their sole external authority in matters of religion. There were famous names among the non-Separatists, including men like John Harvard, the founder of

Harvard College, but the majority of Puritans in America were Separatists, or men who wished, on principle, to separate not only from 'corruptions' in the Church, but from a Church which tolerated corruptions. Independent or Congregational principles prevailed among them, each congregation being an independent brotherhood bound together by a mutual covenant. The Church or congregation was accordingly the source of whatever external authority there was, and the community was organised on a theocratic basis. Discipline was rigorous, no distinction being made, e.g., between sin and crime, and Maypole revels and the celebration of Christmas day were penal offences. Throughout the seventeenth century the Puritans were in the ascendancy, and they extended no kind of toleration towards those who disagreed with them, and were, moreover, jealous of their hard-won privileges. Early there were collisions with the Anabaptists, who, however, differed little from the Congregationalists except in the matter of infant baptism. The first Baptist Church in America was founded at Providence, by Roger Williams, an extreme Separatist, who, as an advocate of toleration, wrote a tract *The Bloody Tenent of Persecution*, which was answered by Prynne. In his enthusiasm for toleration Williams afterwards founded the colony of Rhode Island in 1644 for the express purpose of furthering toleration. On at least two occasions Charles II. intervened in favour of toleration for Separatists in America, once on behalf of the Anabaptists and again in order to secure better treatment for the Quakers, who were accused of defying all civil authority. A royal letter of 1661 requesting that corporal punishment of Quakers should be discontinued gave the Quakers some relief, but in general their zeal was of so provocative a nature that the respite proved but temporary. Apart from the Jesuits, the Moravians were the only influential missionary agency prior to 1800, though the Society for the Propagation of the Gospel had over fifty missionaries distributed over New England, New York, New Jersey, Pennsylvania, Carolina, and Georgia, and their ministrations were given not only to the colonists, but also to the negro population and to the Indians.

The most far-reaching event in the religious history of America in the eighteenth century was the movement called the Great Awakening which began in 1735 and lasted

until 1760. It was a Pietistic movement which preceded the arrival of the Wesleys, and the chief figure in it was the famous preacher, Jonathan Edwards, whose book, *Narrative of Surprising Conversions*, proved so great an influence over Wesley himself that he joined the Moravian brethren in their journey to Georgia in 1736. Methodism proper did not begin in America until thirty years later, the first Methodist bishop being Francis Asbury, whom Wesley sent out in 1771. The movement thereafter spread quickly, and Methodism is said to be to-day the most powerful religious body in the U.S.A. The most remarkable influence in the Great Awakening was the emotional preaching of George Whitefield, and it is frequently said that no one ever preached to such vast crowds or received such popular adulation as Whitefield did in America. On the other hand, Wesley's first visit, namely to Georgia in 1736-37, was a failure, a consequence of his insistence on baptism by immersion, his refusal of sponsors who were not communicants, his rejection of Dissenters except on re-baptism, and the personal nature of his sermons, all of which considerations alienated the settlers and eventually brought him into conflict with the Moravian brethren themselves.

There was a reaction, however, during the War of Independence, when Rationalism spread from Europe to America. The remarkable influence of Tom Paine's *Age of Reason* in the U.S.A. was due partly to the fact that its *réchauffé* of Voltairean cynicism by way of expounding the common Deist objections to the Bible, were calculated to appeal to a more uneducated type of colonist grown discontented under the anarchy of *laissez faire*, and the more prone to sympathise with French opinions because their allies in Quebec were of that nationality; and furthermore, Paine himself was popular for having fought for the colonists in the War of Independence. The way, too, had been prepared to some extent by the Universalists, whose movement had begun a decade before, but was only reorganised on a definite basis for the first time some thirty years later, when the parent body was established in Massachusetts. The doctrine of Universalism as expounded by Hosea Ballou, an excommunicated Baptist, assumed the final salvation of all men and denied the Trinity.

There is no established church in the U.S.A. The Constitution of the U.S.A. expressly provides that

Congress shall make no law respecting an establishment of religion or prohibiting the free exercise thereof.' But though there is no established Church, there is a considerable following of the Church of England, which in America calls itself the Episcopal Church. Anglicanism, however, had a hard struggle in the U.S.A., the colonists of New England, in the seventeenth century, being intolerant of it; and it was not until after the lapse of many years that the episcopal clergy from England obtained a permanent footing in the country. The Church was, however, early endowed in Virginia, and also in Maryland; but in New England the colonists, with a full realisation of the reputed bad character of so many of the clergy and chaplains theretofore sent out from England, were in no mind to receive such clergy in their settlements. It is recorded that one John Lyford, a Plymouth minister, who went out in 1624, and another, named Oldham, of the same period were both expelled with every circumstance of contumely, the latter being conveyed to the waterside with blows of a musket. Again, the brothers Samuel and John Brown, who proposed at Salem to 'hold to the Orders of the Church of England,' were deported in 1629 by orders of the Governor. In many states, opposition to the use of the Prayer Book was raised by the Puritans, notably in Massachusetts, and by the later part of the seventeenth century there was not one single episcopal minister left in New England. A counteracting influence was, however, introduced by the Royal Governors after the Restoration, who secured Prayer Book services for themselves and their retinues. But meeting-houses were difficult to obtain even by them, and the Governor of New England, after building King's Chapel in Boston in 1688 for himself and council, was promptly driven back to England. Yet it is to be admitted that American historians concur in attributing this intolerance to the personal character of the English clergymen sent to the colonists, and this seems to be no less true of Maryland than of other states. Early, however, in the eighteenth century the S.P.G. kept episcopacy alive in America through their missions to the Indians in New York, and for the better part of the century supported over three hundred ordained missionaries in the country of whom, as we have seen above, Wesley was one. By 1730 there were four Episcopal Churches in Rhode Island and three in Massachusetts. Dutch

Calvanists and Presbyterians, however, were predominant in New York, though Anglicanism was favoured by the government. By 1745 there were a score of Anglican churches in New York and New Jersey served by Anglican missionaries. But the great revival of Episcopacy in the U.S.A. was indigenous and may be said to have begun in the early seventeenth century with Timothy Cutler, rector, and Daniel Brown, tutor of Yale College, Connecticut, who, with the help of several Congregational ministers of that state, memorialised the college authorities on the 'invalidity of Presbyterian ordination in opposition to Episcopacy.' The former became the first rector of Christ Church, and the latter began a ministry in Connecticut. Twenty years later over a dozen churches had been built, and the revival was a reality. There was a set-back during the War of Independence, when episcopacy, which elsewhere than in Connecticut had close ties with England, was openly aspersed for that reason; and in the South the existence of the Church practically ceased. The American historian L. W. Bacon considers that the real revival of Anglicanism in America dates from the consecration of Bishops Griswold and Hobart in 1811. Among the chief representatives of Anglicanism in America at this time were John Henshaw, Bishop of Rhode Island, who published *The Apostolic Ministry* on Apostolical Succession, and Richard Moore, Bishop of Virginia. Some twenty years later a 'ritual' movement began in America, and though it encountered, as in England, much hostile criticism for alleged superstitious practices, yet, generally speaking, the question of rites and ceremonies was settled far less acrimoniously in America than in England. In spite of occasional internal discords, the growth of the denomination in America continued to be rapid and enduring and it is remarked by Bacon that, 'no fact in the external history of the American Church at this period is more imposing than the growth of the Episcopal Church from nothing to a really commanding station.'

Bibliography.—Platner, *Religious History of New England*; Jonathan Edwards, *Works*; L. W. Bacon, *History of American Christianity*; M'Vicar, *Early Life and Professional Years of Bishop Hobart*; C. P. S. Clarke, *Short History of the Christian Church*, (1929).

Church, States of the, or the Papal States (in Italian, *Stati Pontifici*,

Stati della Chiesa, etc.), were those portions of Italy formerly under the dominion of the Pope. The temporal rule of the Papacy, which dated from the bestowal of the exarchate of Ravenna upon Pope Stephen II. by King Pepin, and reached its height under Innocent III. (1198-1216), was not finally annihilated till 1870. The total area of the states in 1859, the last year of their entirety, was 16,000 sq. m., the pop. six years earlier being over 3,000,000. Legations were ruled by cardinals, delegations by prelates. With two small exceptions, the papal states may be said to have formed a compact prov. bounded on the N.E. by the Adriatic, on the S.E. by the kingdom of Naples, on the S.W. by the Mediterranean, on the W. by Tuscany and Modena, and on the N.W. by the Lombardo-Venetian kingdom.

Church-ale, a kind of annual church festival in mediæval England at which quantities of ale were drunk. (For the compound, cf. Bridal Scotch-ale.) It was held in the churchyard or near the church, usually at Whitsuntide or Easter. The profits were often used for church funds or charitable purposes. Music, bull-baiting, dice, and dancing formed the amusements. The practice died out after the Reformation, and was always strongly denounced by the Puritans. The nearest modern equivalents are village fairs or wakes. See Philip Stubbes's *Anatomic of Abuses*.

Church Army, a mission of the Church of England, founded in 1882 by Wilson Carlile (now prebendary of St. Paul's), for the benefit of the working classes. It is governed by a committee within the Church, some of the bishops being members. The membership has now reached many thousands, and besides extending throughout the kingdom this organisation has branches in the U.S.A. and other lands. There are two main departments, evangelical and social. The first chooses and trains suitable people (free of expense) to be teachers of the Christian doctrine or mission nurses—'Church of England evangelists.' The second aims at helping outcasts, criminals, and the homeless, by providing them with work and shelter, and by other means. The headquarters of the army are at 53-61 Bryanston Street, London, W. 1, the chief secretary being Prebendary Carlile. Numerous mission and colportage vans travel all over the country to different parts when desired. In 1888 labour homes were established in London and in other parts of the kingdom. Test farms are in Essex, Surrey, Newdigate, and

Hampstead. Help is also given to emigrants, to discharged prisoners and convicts. There are homes for first offenders, drunkards, and for boys and girls. See Rowans, *W. Carlike and the Church Army*.

Church Assembly, The, was set up in 1920 for the purpose of co-ordinating the work of the scattered units of the Church of England. It consists of three Houses, composed of bishops, clergy, and laity. The Assembly is free to discuss any proposal concerning the Church of England, and to make provision in respect of such matters, but where this includes Parliamentary sanction for any alteration contemplated, this authority is to be sought under the Church of England Assembly (Powers) Act, 1919, which is commonly known as the 'Enabling Act.' Suggested alterations in doctrinal formulæ or in services or ceremonies or in the administration of the Sacraments must be voted upon by each of the three Houses sitting separately, then by the Assembly, and finally by the House of Bishops. Parliament has the right of veto in the last instance in view of the close association of Church and State. The Church of England Assembly (Powers) Act enabled the Church to become, for the first time, articulate as a body, and since it became operative many measures of reform have been passed including the Clergy Pensions (Amendment) Measure, 1927: Representation of the Laity Measure, 1929: Ecclesiastical Dilapidations (Amendment) Measure, 1929: Clergy Pensions (Older Incumbents) Measure, 1930, and many others.

Church Association, founded 1865, with the object of 'maintaining the principles and doctrines established at the English Reformation and of preserving the purity of Protestant worship in the Church of England. . . . A strong 'Low Church' body, it has formed a Protestant electoral association in many of the parliamentary boroughs and divisions of England. Its organ is the *Church Intelligence*. Secretary, Patrick H. White, Church Association Offices, 13-14 Buckingham Street, Strand, W.C. 2. See *Official Year-book of the Church of England*.

Church Brief, see BRIEF.

Church Congress, the name of free gatherings of both ministers and laymen of the Church of England, annually convened for free discussion of great questions concerning Church and State. The first was held at Cambridge in 1861. The attendance is usually large, including bishops and lower dignitaries. Full reports

of each session are published. Since 1875 similar congresses have been held in the U.S.A., when the General Convention does not meet.

Church Defence Committee. The Church Defence and Church Instruction Committee is composed of members strongly opposed to Disestablishment. Many church defence associations were formed throughout England in 1859, the present committee dating from the end of the nineteenth century. It gives popular instruction on church history. No questions of doctrine are discussed at its meetings.

Church Lads' Brigade, founded in 1891 by Col. W. M. Gee and organised on the same lines as the Boys' Brigade. The C.L.B., however, is confined to members of the Church of England, and its purpose is to instil a regard for religion, health and citizenship. The organisation is military in outline, and annual camps are held each year. The movement has spread through the Empire, and at present (1930) there are over 1330 companies with an enrolment of about 60,000 lads. The headquarters of the C.L.B. are at Aldwych House, Catherine Street, W.C. 2.

Church Missionary Society. This society was founded in April 1799 by a little band of about twenty-six men, among them being Wilberforce, Venn, Simeon, Sharp, and Wood. It resulted directly from the evangelical movement in the Church of England, but is now supported more widely by many schools of thought. Its original name 'Society for Missions to Africa and the East' never came into practical use, and the full 'Church Missionary Society for Africa and the East,' adopted in 1812, has come to be shortened to C.M.S. There was considerable opposition at first, and consequently many of the early missionaries were provided by Germany, among them Krapf, Pfander, and Rebmann. About fifty years after its foundation it was recognised by the episcopate. The medical department and the employment of women missionaries began to be discussed by 1882, the former being fully organised by 1894, the latter by 1895. The society's fields for foreign work are very extensive. Some of the earliest operations began in Sierra Leone, where the liberated slaves were settled. The society's patron is always a member of the royal family; its vice-patron the Archbishop of Canterbury; its president must be a layman. A special feature is the number of auxiliary societies connected with the C.M.S., such as the Missionary Leaves Association

Lay Workers' Union, and Younger Clergy Union. Among the chief literary periodicals issued are the *Church Missionary Outlook*, *Church Missionary Society Gazette*, and the *Round World*. The committee meet once a month at the headquarters, Church Missionary House, Salisbury Square, London, E.C. 4. There are now over 18,000 missionary workers of both sexes, including some 723 native clergy and 16,119 native lay-agents. The native adherents number 1,010,100. There are 2897 schools established in different parts. There is a training college for men at Islington, for women at Highbury. There are also institutes at Blackheath, Stoke Newington, and Hampstead. At Limsfield, Surrey, is a home for the children of missionaries.

Church Rates were formerly a tax levied in England and Ireland on all occupiers of land within the parish for the purpose of meeting the expenses incidental to the celebration of divine service and to the preservation and repair of the church fabric. The tax was assessed by the parish vestry. Property formed the basis for the amount which each tenant was required to pay. A Dissenter might either be called on to appear in an ecclesiastical court, or, if the sum were under £10, he might be ordered to pay by the local justices of the peace. Since the compulsory Church Rates Abolition Act of 1868, maintenance of the churches has depended entirely on voluntary contributions, so that the rates are now only laid on actual members and supporters of the church.

Church Reform League. This body which was founded in 1895, was established with the object of advocating church reforms whether in regard to discipline, patronage, finance, or the laity. Its foundation principle is that Church reform should be carried out by the Church herself through her own assemblies, subject to the legal supremacy of the king. The present offices of the C.R.L. are Church House, Dean's Yard, Westminster, London.

Church Union (English), formed in 1859 as a consequence of the Protestant riots at St. George's-in-the-East, its purpose being to maintain unimpaired the doctrine and discipline of the Church of England against Erastianism, Rationalism, and Puritanism, and further, to repel any attempts to seize the Church endowments for secular purposes and resist all attacks on the Church's marriage laws. The organ of the C. U. is the *Church Union Gazette*. Its president is Viscount Halifax, and its offices are situate at 31 Russell Square, W.C. 1.

Church, Alfred John (1829-1912), Eng. classical scholar, educator and author, master at the Merchant Taylors' School, 1857-70. With Brodribb he translated Tacitus (3 vols., 1862-77). He is best known for his attempts to popularise the classics. His *Stories from Homer* appeared in 1877; *Stories from Virgil*, 1878. He also wrote *Stories from the Greek Tragedians*, 1879; *Stories from Livy*, 1882; and *Stories from Herodotus*. Other works are: *Roman Life in the Days of Cicero*, 1883; *Carthage* (Stories of the Nations series), 1886. C. edited *Horæ Tennysonianæ* (translations into Latin verse), 1868.

Church, Sir Arthur Herbert (1834-1915), English chemist and scientific writer, professor of chemistry in the Agricultural College of Cirencester, 1863; in Royal Academy of Arts, 1879-1911; lecturer at Cooper's Hill, 1888-1900. Among new minerals discovered by C. are 'churcheite' (called after him), and the animal pigment turacin. He was president of the Mineralogical Society, 1898-1901. He carried out researches in various branches of chemistry, and besides scientific memoirs his works include: *Precious Stones*, 1883; *English Earthenware*; *English Porcelain*; *Food*, 1901; *Josiah Wedgwood*—all of which have gone through many editions. He was made K.C.V.O. in 1900.

Church, Sir Richard (1784-1873), British soldier, one of the liberators of Greece, son of a Quaker, b. at Cork. He accompanied the expedition to the Ionian Is. in 1809; raising two regiments of Gk. light infantry in 1809 and 1812. C. was Eng. representative with the Austrian troops at the time of Napoleon's fall (1813-14), and served King Ferdinand of Naples from 1817 to 1820. On the outbreak of the Gk. revolution and War of Independence he became general of land forces there (1827), but an attempt to relieve the Acropolis failed, owing to lack of co-operation. He was more successful in W. Greece, forcing the garrisons of Missolonghi and Lepanto to surrender (1828), but resigned his command in 1829. He helped in the revolution of 1843, which overthrew King Otto and gave Greece a constitutional government, becoming general of the Gks. again in 1854. Consult *Correspondence and Papers of Sir R. Church* (29 vols. in Brit. Mus.); *Church, Sir R. Church in Italy and Greece*, 1895.

Church, Richard William (1815-90), an Eng. divine, nephew of Sir R. C. (d. 1873), became fellow of Oriel, 1838. C. was an intimate friend of

Cardinal Newman at this time, and allied to the Tractarian party. In 1844, as junior proctor, he vetoed a proposal to censure *Tracts for the Times*, No. 90, publicly. He founded *The Guardian*, 1846, and contributed also to *The Saturday Review*. C. became rector of Whatley, 1853, and was nominated by Gladstone to the deanery of St. Paul's, 1871. He declined promotion on Archbishop Tait's death. As an ardent High churchman he deprecated antiritualism, and urged toleration. Among his many works are: *Civilisation and Religion*, 1860; *University sermons*, 1876-8, in *Human Life and its Conditions*; a series of St. Paul's and Oxford sermons in *The Gifts of Civilisation*, 1880; *The Discipline of the Christian Character*, 1885; *Village Sermons*, 1892-7. C. wrote *Spenser*, 1879, and *Bacon*, 1884, for the English Men of Letters series, both admirable works. Other works are: *The Beginning of the Middle Ages*, 1877; *The Oxford Movement*, 1891. C. edited Hooker's *Ecclesiastical Polity*, i., 1868, and with Paget revised Keble's edition of Hooker, 1888. See Church, *Life and Letters of Dean Church*, 1895.

Churchill, see MARLBOROUGH, DUKE OF.

Churchill, Charles (1731-64), satirical poet, was the son of the rector of Rainham, Essex. His marriage at the age of seventeen prevented his going to a university, but he was prepared for the Church, and took orders in 1753. He became curate to his father when he was ordained priest in 1756, and when his father died, two years later, he succeeded him as curate and lecturer at St. John's, Westminster. The Church, however, was not his vocation, and in 1763 he resigned his offices, probably under compulsion, for his disorderly conduct made it impossible to allow him to continue in them. Somewhat earlier he had looked to literature to supplement his meagre stipend, and in 1761 he published at his own expense, having failed to obtain a fair price for it from the booksellers, his theatrical satire, *The Rosciad*. This was at once successful, not only owing to its undoubted merits, but also owing to its numerous personalities. This was followed by other works, the best known of which is *The Apology*, all of which are distinguished by their robust satire and the vigorous versification. C. now became acquainted with Wilkes, and he wrote many papers for the *North Britain*. When Wilkes was arrested, after the issue of the notorious 'No. 45,' C. only escaped by his friend's ready wit. As a reply to Hogarth's cari-

cature of Wilkes, he wrote the stinging *Epistle to Hogarth*; and when Martin forced a duel on Wilkes, he lampooned the aggressor in *The Duellist*. In Oct. 1764 he went to Boulogne to meet Wilkes, but was there taken ill and *d.* in his thirty-fourth year. The best accounts of C. are by John Forster (*Historical and Biographical Essays*, 1858) and J. L. Hannay (prefixed to the Aldine edition of the poet's work, 1866).

Churchill, Randolph Henry Spencer, more commonly known as Lord Randolph C., (1849-95), was the third son of the seventh Duke of Marlborough. Educated at Eton and Oxford, where he showed great intellectual powers. He was, also, passionately devoted to exercise, and was very fond of hunting. He left the university in 1870, and devoted the next four years of his life to Blenheim. In April 1874 he married the daughter of Mr. Leonard James of New York, and in the same year he was returned for Woodstock as the Tory member. During the early years of his parliamentary life he took no very great interest in parliamentary matters, although on at least two occasions his speeches attracted great attention in the House. During this period, however, he established his ideas concerning the government of Ireland, since he spent much of his time there, his father being the lord-lieutenant. In 1878 he attacked bitterly what he described as the 'old gang' of the party, and put himself up practically as the champion of orthodox Toryism. He, however, supported generally the policy of the Conservative Government. The crushing blow which the Tories received at the general election of 1880, however, led to the formation of the Fourth Party. This party, founded and led by Lord Randolph, had for its object the vindication of Conservative principles and the harassing of the 'old gang,' especially Sir Stafford Northcote. By this time C.'s speeches throughout the country had obtained for himself prominence as a politician and leadership in his own party. He began to advocate openly his principles of Tory Democracy, which seem to have been based upon the theory, 'trust the people,' and which were to win for the Tories the suffrages of the masses. In 1885 he attempted to defeat Bright at Birmingham, and was ultimately returned as Conservative member for S. Paddington. In Salisbury's first administration he was Secretary of State for India. After the defeat of the Home Rule Bill and the disintegration of the Liberal party, he became Chancellor

of the Exchequer and leader of the House of Commons. His resignation in six months was due to his inability as Chancellor to acquiesce in the vote for supplies for the army and navy, and he probably thought that the mere threat of resignation would bring the Government to their knees. He was mistaken; his resignation was accepted, and the ministry continued and flourished. After this period, he played no very active part in politics. In 1892 he was re-elected for parliament, but during the session of 1894 he showed signs of mental and physical breakdown. His son, Winston Churchill (*q.v.*), wrote his Life, 1905.

Churchill, Winston Leonard Spencer, P.C., M.P., eldest son of the Right Hon. Lord Randolph C. (*q.v.*), b. Nov. 30, 1874. He was educated at Harrow and Sandhurst, and entered the army in 1895. During the Spanish American War he served with the Spanish forces in Cuba, and his services here were recognised by the Spanish authorities. Between this date and the ending of the S. African War in 1902 he saw much active service: fighting in India, Egypt, and finally S. Africa. During the latter war he acted as the war correspondent of the *Morning Post*. On Nov. 15, 1900, he was taken prisoner by the Boers, but within a month succeeded in making his escape. In 1899 he contested Oldham in the Conservative interest. He won it the following year, at the Khaki election, and he held it for nearly six years. When Chamberlain's 'Tariff Reform' was launched in 1903, among the disapproving Conservatives was C., then one of the active opponents of any change in the fiscal system. At the election of 1906 he won N.W. Manchester in the Liberal interest. He had in the meantime been appointed Under-Secretary of State for the Colonies in the Campbell-Bannerman administration. He proved one of the bitterest of opponents to the Conservative party, and led attacks on the greater part of their policy. In 1908 he became President of the Board of Trade. He was, however, defeated at the bye-election necessitated by his appointment. He soon obtained another seat at Dundee. He was peculiarly obnoxious to the militant suffragettes, who made him suffer much in all his election campaigns. In 1910 another reshuffling of the Cabinet was made, and C. was appointed Home Secretary. It was during his tenure of this office that C. incurred a measure of quite unmerited ridicule at the hands of the opposition Press for apparently superintending the 'operations' in

Sidney Street, Whitechapel, where some British infantrymen were detailed to fire on a house in which some foreign anarchists had taken refuge and which they were prepared to hold *à outrance*. He held this office for nearly two years, and was then appointed First Lord of the Admiralty. In his pre-war work in that office he conferred frequently with Lord Fisher, then in retirement



[Topical Press

RT. HON. WINSTON CHURCHILL

The Fleet's excellent state of preparedness on the outbreak of the Great War was due largely to C. The Naval Brigade that C. procured and personally directed at Antwerp delayed the fall of that city. On the recall of Lord Fisher to duty in Oct., he and C. projected a diversion in the East. The Dardanelles scheme was the outcome—disapproved by Fisher. On Mr. Balfour taking the Admiralty, May 1915, C. became Chancellor of the Duchy; but, not being included in the War Cabinet, he resigned in Nov., and spent the early part of 1916 as Lieut.-Col. commanding the 6th Royal Scots Fusiliers in Belgium. In June, at the request

of the Admiralty, he wrote an 'appreciation' of the Battle of Jutland for the neutral Press. Later, he circularised the Ministry with a memorandum on the Allies' failure on the Somme. He sought solace in painting, and, as 'Charles Morin,' sold his pictures. In July 1917 he succeeded Dr. Addison as Minister of Munitions, at which office he accelerated the supply in larger quantities of the requisite shells and other munitions for the final Allied advance of 1918. In this work, however, his policy of increasing the munition workers' wages by 12½ per cent. has been freely criticised as materially contributing to the cost of the war; but the vital need of the moment was to secure the necessary output, a need which probably could have been met in no other way. His greatest triumph in this office was the organisation of 'tank' construction on a large scale, and it is worthy of remark that C. was in a measure the originator of the tank. At the Armistice he became Secretary for War and for Air, and in that capacity he lent troops and other aid to the White or anti-Bolshevist armies in Russia. Here again he has incurred criticism, but apart from the sinister influence of the Bolshevik régime in subsequent years, which would have justified strong measures at the outset, it is to be borne in mind that the anti-Bolshevists were allies of the Entente before the close of hostilities in the Great War. The defeat, however, of Admiral Kolchak prevented the junction of his forces with those of General Rawlinson, with the result that the only course was for the latter to evacuate the British troops already stationed at Archangel and Murmansk. With the defeat of General Denikin in the S., C.'s plans were frustrated and the last chance of restoring the old régime in Russia had gone. During his tenure of office as War Secretary, C. rendered valuable and expert service in re-organising the regular army and in reconstituting the Territorial forces as a second-line army available, with due constitutional safeguards, for foreign service. He was Secretary for the Colonies from early in 1921 until the Coalition fell in October 1922, and again there fell to him tasks of great urgency by way of aftermath of the Great War. In Ireland he pursued a vigorous policy during the Sinn Féin outrages of those years and advocated reprisals. Subsequently, however, the Cabinet, largely at the instance of American opinion, reversed its policy and made terms with Ireland, C. taking

a prominent part in the generous settlement made with the newly-created Irish Free State and thereby ending a state of things which, in historical sequence, goes back to the days of Strongbow. At the Colonial Office, too, C. had much to do with the setting up of the mandatory rule of the British Gov. in Iraq—a name substituted by C. himself for Mesopotamia as more in consonance with history and present boundaries—and in Palestine. Much credit for the organisation and secure foundation of Iraqi institutions on modern lines is due to C.'s initiative and vigorous policy against the various hostile Arab elements. In the General Election of Nov. he lost his seat at Dundee to the Labour Party, whom he had antagonised by a circular (revealed in the *Daily Herald*, May 1919) on military action in case of a General Strike, which was characterised by his Socialist opponents as a 'strike-breaking' device. When Baldwin went to the country in Nov. 1924 C. stood for W. Leicester, and was again defeated by Labour. He dissented from Liberal-Labour agreement to throw out the Baldwin Gov., and stood as an Independent candidate in a by-election in the Abbey div. of Westminster, but was defeated by the local Conservative. Back again at the parting of the ways, he stood as a Conservative in the General Election of Oct. 1924, and was elected for Epping. Mr. Baldwin made him Chancellor of the Exchequer, and he so remained while Baldwin's Ministry lasted. During the General Strike of May 1926, C. rode the whirlwind in the Ruritanian way described by H. G. Wells in *Meanwhile*. His budgets showed a gentle drift away from Free Trade, preserving and extending 'safeguards': his last, 1928, was coupled with Derating (*q.v.*). Chief amongst his published works are: *The Story of the Malakand Field Force*, 1898; *The River War*, 1899; *Savrola*, 1900; *London to Ladysmith via Pretoria*, 1900; *Ian Hamilton's March*, 1900; *Lord Randolph Churchill*, 1905; *My African Journey*, 1908; *Liberalism and the Social Problem*, 1909; *The World Crisis* (4 vols.), 1923–29.

Churchill, Winston, b. at St. Louis, Missouri, U.S.A. Nov. 16, 1871. He graduated from the U.S. Naval Academy in 1894, but did not pursue a naval career, turning instead to the writing of novels dealing with American history and politics, in which he was very successful. As he and the well-known Eng. statesman have the same name, are of about the same age and both have

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written books, many people often confused them. *A propos* of this, the Englishman once wrote an amusing and charming letter to his American namesake. The American novelists' best-known books are *The Celebrity*, 1898; *Richard Carvel*, 1899; *The Crisis*, 1901; *The Crossing*, 1904; *Coniston*, 1906; *The Inside of the Cup*, 1913, and *A Far Country*, 1915.

Churchill River, rises in Lake Methye, Canada, between R. Athabasca and Saskatchewan, flowing through various lakes into Hudson's Bay, near Fort Churchill in Keewatin. It forms the only harbour on the W. of Hudson Bay for large vessels at all states of the tide (6-8 fathoms deep), but has rapids only navigable by canoes, 5 m. from the mouth. Lake Reindeer or Caribou connects it with Wollaston or Great Hatchet Lake and Mackenzie R.; La Loche portage with the Athabasca's tributary, Clearwater. Known as C. Riv. as early as 1688 (probably after Lord Churchill—Marlborough). It is also called Missinnippi, English, or Beaver R. (about 900 m. long).

Churching of Women, a public thanksgiving in church by mothers for their motherhood and recovery from the perils of childbirth. This religious usage (probably borrowed from the Jewish law, Lev. xii. 6) has prevailed in the Christian Church from early times. In former days the practice was usual, but among Protestants it is falling into disuse, though still obligatory in the Gk. and Rom. Catholic churches. Presbyterian and Independent churches of Britain and America reject the service. The Gk. rite also celebrates the presentation of the infant in the church, the Latin is exclusively a blessing on the woman (whose child is born in wedlock). The first definite mention is in the pseudo-Nicene Arabic canons. The formularies now used date only from mediæval times.

Churchmen's Union. This society of 'broad' churchmen was founded in 1898, to maintain the Church's right to restate her belief occasionally in accordance with progressive revelation, to promote a spirit of tolerance, and support all who loyally attempt to vindicate the truths of Christianity by the light of learning and research.

Churchwardens are lay ecclesiastical officers, who represent the body of the parish, and are, as their name implies, guardians of the church. In all new parishes, according to the Church Building and New Parishes Acts of 1818-84, they are appointed one by the minister and the other by the parishioners, and this custom prevails in England, but where a dif-

ferent practice has been time-hallowed no alteration need be made. Thus in some old London parishes the parishioners choose both wardens; in others they are appointed by the select vestry, the lord of the manor or even the outgoing officers. They are elected annually, for the most part during Easter week, being required to make a declaration before the ordinary—usually the bishop of the diocese—to the effect that they will perform their duties in good faith. In early times the 'Seniores Ecclesiastici' merely had charge of the fabric and furniture of the church. To-day the wardens have to collect the offertories, provide the necessities for divine service, to protect and repair the building with its goods and fixtures, and also the churchyard enclosure and assign seats to the parishioners. As the office of C. is single, either officer holding an undivided moiety, the vicar's warden and the parish warden cannot legally act without mutual support. Those primarily eligible are resident householders, but habitual occupiers, who happen to be non-resident householders, may also be appointed. Certain classes, such as peers, justices, clergymen, etc., are exempt, whilst others, as, for example, aliens and felons, are ineligible. In the Rom. Catholic Church lay officials like the three Marguilliers in parishes of France offer the nearest analogy to the Eng. C.

Churchyard, the name of a piece of consecrated ground attached to a parochial church (thus differing from a 'cemetery'), used as a burial-place. Cs. are often of earlier date than the church itself, since Rom. law protected any area containing monuments of the dead with the utmost reverence. Burial in Cs. in England is ascribed to Cuthbert, Archbishop of Canterbury (741-58). All Christian services may now be used at C. burials (Vict. 43, 44, chap. 41). The C. is the freehold of the parson. It may never be used for secular purposes, and misbehaviour of any kind within its precincts can be severely punished by law. *See also* BURIAL.

Churl, *see* CROTL.

Churn, a vessel or utensil for the purpose of making butter, by shaking the cream and so separating the serous from the fatty parts. The form of C. which for long held its position was an upright wooden vessel, shaped like a travelling metal milk can, in which the cream was worked by a wooden 'plunger' by hand. To this succeeded a wooden box, in which moved a 'splasher,' or 'dasher,' a small wooden wheel, like a water wheel, turned by a crank

by hand. Large Cs. are now turned by machinery, and revert in a way to the primitive form by being revolved or swinging on themselves by mechanical means. Good Cs. should be of seasoned oak-wood, and so constructed with removable splashers or dashers that they can be easily and thoroughly cleansed after use. In modern large Cs. glass lights are fitted through which the butter can be watched as it begins to form, and the exact moment for withdrawing the buttermilk be ascertained. See BUTTER and DAIRY.

Churu, a tn. of Rajputana, India, 100 m. from Bikaner. Pop. 14,000.

Churubusco, a village situated on the Rio de C., 6 m. S. of Mexico City. Before the Spanish Conquest there was a large Aztec city on the same site, called Huitzilopochtli, of which the name, C., is a corruption. C. contains a stone convent which in later days was the stronghold of the Mexican defence against the American troops under General Scott at the important Battle of C. on Aug. 18, 1847, during the Mexican War. The Mexicans under Santa Anna were eventually defeated, losing about 7000 men, the American losses being only 1000.

Chusan Islands form an archipelago off the E. coast of China. The largest, Chusan, is 20 m. long and from 6 to 12 m. wide; it is regarded as the key to China. There are several towns, of which the capital is Ting-hae. It is situated near the mouths of the Yang-tse-kiang, which river forms the chief medium of communication.

Chusite, a variety of olivine, which is itself a variety of chrysolite, from which Dana considers it to be derived.

Chust (*Tuz*, salt) a tn. of Russian Turkestan, Ferghana prov., on Syrdaria, 32 m. from Namangan, 80 m. from Marghilan, at the foot of the Chotkal Mts. Manufactures knives. Pop. about 15,000.

Chutia-Nagpur, or Chota-Nagpore, a div. of W. Bengal. British India, including besides British districts several small native tributary states (*mehals*), the chief being Sirgaja, Gangpur, and Jashpur, between the valleys of the R. Son and Mahanadi (Ganges tributaries). The five chief districts are Hazaribagh, Ranchi, Palamau, Manbhum, and Singhbhum. There are forests and jungles everywhere. Products are lac, wild silk, timber, rice, corn, and tea. Coal and iron are mined (especially at Jherria). Many of the hill-men are now Protestants. Pop. about 4,900,000. Consult Bradley-Birt, *Chola-Nagpore*, 1910.

Chutney, Chutnee, or Chutny (Hindu *chātni*), an E. Indian condi-

ment made of mangoes, chillies, or capsicum, and lime-juice, with other native fruits, such as tamarinds or ginger-root. The flavour is often heightened by garlic. It is now manufactured for sale in the W., like pickles. Home-made Cs. are often made with various fruits, acids, and spices, tomato flavouring being very common. The chief ingredients generally used are chillies, green ginger, crushed tamarinds, apples, sultana raisins, distilled vinegar, shallots, cayenne pepper, fine salt, garlic, and cucumber. See Forbes, *Oriental Memoirs*, ii., 1813; and for detailed recipes any modern cookery-book.

Chuvashes, or Tehuwashes, a people of E. Russia near R. Volga (Kazan, Simbirsk, Ufa, Samara), probably of mixed Finnish and Tartar origin, now generally considered of Turkish stock, numbering between 500,000 and 600,000. They are nominally Christians. Their country has been formed by the Soviet Gov. into an Autonomous Area of 18,413 sq. km., with a pop. of 893,734.

Chu-yung-Kuan, a customs station in the Nankou Pass, 30 m. N. of Peking, China. It possesses a polyglot inscription.

Chyle, a milky-looking fluid passing through the lacteals, which are the vessels which absorb fat from food passing from the smaller intestine. The liquid, which consists of a mixture of these fat globules with the natural juice, passes from the lacteals into the thoracic duct.

Chyluria, the passage of chyle with the urine. It is commonly caused by the presence of the parasitic *Filaria sanguinis-hominis* in the blood and lymph channels. Where filaria are not present the condition is probably due to a disordered state of the lacteals, the capillary vessels of the small intestine that normally take up the chyle.

Cialdini, Enrico (1811-92), an Italian general and politician who in 1860 won the Battle of Castelfidardo. In 1861 he forced Gaeta and Messina to yield, for which services he was created Duke of Gaeta.

Ciamicini, Giacomo Luigi (1857-1922), Italian chemist, b. at Trieste, educ. at univ. of Vienna. Assistant at Chemical Institute of Rome, 1880; professor of general chemistry, Padua, 1887. From 1889 ordinary professor of general chemistry at Bologna. Senator, 1910. Works include: *Organico e fisiologico chimica*, 1908; *Fotochimica nell'avenire*, 1912.

Ciampoli, Domenico (b. 1855), an Italian writer, b. at Atessa, in the Abruzzi. He is a professor of literature at Ancona, and has written some stirring novels which represent the

life of the natives in the Abruzzi, such as *Conti Abruzzesi*, 1880; *Trecce Nere*, 1882; *Cicuta*, 1884. Other novels are *L' Ignoto*, 1883, and *Roccamorina*, 1890, besides various works on Slav literature, as the *Melodie Russe*, 1881, and *Littérature Slave*, 1889-90.

Cianciana, a tn. in the prov. of Girgenti, Sicily, which possesses extensive sulphur mines. Pop. 6910.

Cibber, Caius Gabriel (1630-1700), Danish sculptor, who came to England and worked at Chatsworth for the fourth Earl of Devonshire, under whom he fought for William of Orange, who made him royal carver. His son, Colley C. (*q.v.*) was the well-known actor and dramatist. His most famous works are the statues of 'Melancholy' and 'Raving Madness,' and the bas-reliefs on the Monument. The Danish Church in London, where he is buried, is supposed to have been built by him.

Cibber, Colley (1671-1757), poet laureate, dramatist, and actor, came to London in 1687, and on hearing of the landing of William of Orange, offered himself as a volunteer to William Cavendish, Earl of Devonshire. Soon after the revolution, C., being disappointed in his hopes of obtaining a commission in the army, joined the united companies at the Theatre Royal, where he made his first appearance in 1691, and in the following year his first success, in the part of the Chaplain in *The Orphan*, by Otway. In Jan. 1695 his first play, *Love's Last Shift, or the Fool in Fashion*, was produced, and it was so successful that Vanbrugh wrote a sequel to it, called *The Relapse*, in which C. scored his first big hit as an actor. He wrote a great number of plays, many of which found appreciative audiences, and played many parts both in pieces by himself and others. He was at his best in eccentric comedy, his voice being too thin for any declamatory rôles. In 1709 he became a joint-proprietor of Drury Lane, and he was the first manager to run a theatre on strictly business lines. After the death of Laurence Eusden in 1730 he was appointed poet laureate, less, as he himself admitted freely, for his literary merits than for his political activities on behalf of the Whigs and in active opposition to the Jacobites. In 1740 he published *An Apology for the Life of Colley Cibber, Comedian*. This work, in the absence of any biography, is the principal authority for his life.

Cibber, Susannah Maria (1714-66), wife of Theophilus C., actor, and sister of Dr. Arne, the composer. She started as a singer, and was the original Galatea in Handel's *Acis and Galatea*. Afterwards she became

famous as a tragic actress, and played with David Garrick at Drury Lane.

Cicada, a genus of hemipterous insects of the sub-order Homoptera: the species usually inhabits tropical countries, America being especially favoured by its presence. These insects vary in size from one to seven inches across, and are remarkable for their longevity and for their song. The male utters a curious sound, by some thought agreeable and by others intensely displeasing, by means of a peculiar apparatus on the abdominal and metathoracic segments; it was heard by Darwin when he was on the *Beagle* a quarter of a mile from shore, and inspired the saying of the Grk. poet Xenarchus, 'Happy the cicadas' lives, for they have voiceless wives.' *C. tibicen*, the dogday harvest-fly, is a black and green species which infests N. America in summer, and utters a shrill cry in the noontide hours: *C. septendecim*, the periodical C., is noted as the longest-lived insect, for the perfect creature requires thirteen to seventeen years for its development. The eggs are placed in the slits of twigs by the ovipositor of the female, and the larvæ are always subterranean. They are said to damage roots, and are in process of extinction.

Cicadella, a group of hemipterous, homopterous insects, synonymous with the *Cicada ranatra* of Linnaeus. The species are usually small, and leap by means of their hind legs.

Cicatrisation, the process of healing over of an ulcer or broken surface in the skin or the mucous membrane, in which process the original surface is replaced by a material of a fibrous texture and resisting in nature. This effectually shelters the portion of flesh which was exposed, but contains no glands or blood vessels which were present in the original tissue.

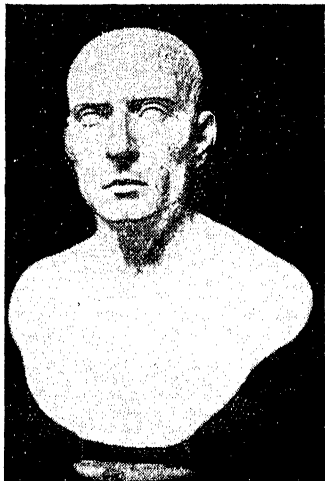
Cicendia, a genus of plants in the order Gentianaceæ, containing a single species, *C. pusilla*, which grows wild in S. Europe and the Channel Islands. *C. filiformis*, a yellow-flowered plant found in damp sandy places of England and Ireland, is now generally referred to the allied genus *Microcala*.

Cicer, a genus of leguminous plants, allied to the vetch. The best-known species is *C. arictinum*, popularly called the gram or chick-pea (*q.v.*).

Cicero, Marcus Tullius (106-43 B.C.), a Rom. orator and politician, b. at Arpinum, the son of a Roman knight whose lineage is not known. He spent the greater part of his early life between his native town and Rome. At an early age he showed a great liking for literature, and as his health prevented him from taking an

active part in boyish pursuits, he devoted the greater part of his time to literature. He studied poetry under Archias, was much under the influence of Phædrus the Epicurean, and he studied dialectic under Diodotus the Stoic. Later he went to Rhodes, where he studied rhetoric and law. His literary attempts at this time consisted principally of translations from the older Gk. writers, some of which have come down to us. He also did his period of military service in accordance with the practice of Rome, and at the age of seventeen saw service during the Social War, in which for some time he served under Sulla, for whom and whose cause he had considerable sympathy. At the age of twenty-five he began his life as an orator. His first speeches are not masterpieces of rhetoric, but he showed no little ability, and one at least of his speeches was recognised as being of considerable merit. For two years C. travelled in the East, still continuing his studies, especially of philosophy and rhetoric, but his travels were made necessary not by his desire to study but by his health. During this period he himself owns that his rhetoric was very much improved, and he returned to Rome at the end of two years with a great many of his previous faults rectified. On his return he married a certain Terentia, a woman who seems to have been noted chiefly for her bad temper, and he became actively engaged in the political life of Rome. He became quaestor in 75, and five years later he prosecuted Gaius Verres. C. in this prosecution was simply following the example of all who desired to get on in the state; he is chiefly noted for his defences, but on this occasion, following the usual Rom. practice, he attacked a noted offender. In 66 he became prætor. Two years earlier saw the beginning of his famous letters. These letters give us an extraordinary insight into the history and the manners of the time. C. was not yet certain, however, of political support; especially of the senatorial party, and for some time he thought seriously of throwing in his lot with the democratic party, but finally the senatorial party decided to support him, and he remained true to their cause for the rest of his life. In 63 he became consul. He was not, however, well supported by the nobility, who always remembered that he was not the descendant of one of the noble families. His year of office was crowded with events, his chief speeches being those made against Publius Rullus and Catiline. The case of Rabirius Postumus also found him deserted by the

senatorial party, and since he had rejected the overtures made by Cæsar, he was forced into exile. He went into exile in 58, and returned in the following year, but his property had been destroyed by Clodius. He was enthusiastically received, but no return was made to him for his losses. While the breach between Cæsar and Pompey was increasing he strove to attack Cæsar, but he was forced to withdraw these attacks. He accepted financial aid from Cæsar, and after this did not



CICERO

actively oppose his actions, but during the period when it became obvious that Cæsar and Pompey must quarrel he devoted himself to literature. In 55 appeared *De Oratore*, in 54 *De Republica*, and *De Legibus* probably in 52. In the latter year he defended Annius Milo, who was charged with the murder of Clodius, and in the same year he was sent to govern the province of Cilicia. He put down several risings in that province, and did his best to alleviate the distress which existed there. In 50 he returned to Rome, but did not enter the city. He found that war was inevitable, and threw in his lot with Pompey, taking, however, no very active part in the war, and finally returning to Rome in 47, on the invitation of Cæsar. During the dictatorship of Cæsar he refrained from politics, devoting himself to literature. At this time also he suf-

ferred much from domestic troubles; he divorced his wife, Terentia, and married his ward, whom also he shortly afterwards divorced; his greatest trouble, however, was the death of his daughter, Tullia. For some time after Cæsar's murder he took no active part in politics, but was gradually drawn into them afterwards. He became the acknowledged leader of the republican party, and relied for safety on the influence which he felt he had over Octavius. In 43, however, he was amongst the proscribed, and on Dec. 7 of that year he was slain. His head was exposed at Rome, and there Fulvia, the wife of Antony and widow of Clodius, thrust a hairpin through his tongue. His chief works, some of which have been lost, are: *De Oratore*, *De Republica*, *Brutus*, *Orator*, *Partitiones Orationes*, *Paradoxa*, *Academica*, *De Finibus*, *Laus Catonis*, *De Naturâ Deorum*, *De Divinitate*, *De Fato*, *De Senectute*, *De Amicitia*, *De Officiis*. See Strachan-Davidson, *Cicero*; Tyrrell and Purser's *Letters of Cicero* (7 vols.); and Plutarch's *Lives*. Translations: *Letters* by Schuckburgh (4 vols.), *De Finibus* by Reid, *De Naturâ Deorum* by Brooke.

Cicero, Marcus Tullius (b. 65 B.C.), the only son of Marcus Tullius C., the great orator, and his wife Terentia. In 44 B.C. he joined the republican party and served as military tribune under Brutus in Macedonia; and after the Battle of Philippi 42 B.C. he fled to Sicily, where he joined Sextus Pompeius, but on the conclusion of peace between the latter and the triumvirs in 39 B.C. he returned to Rome. Octavian received him as his colleague in his consulship of 30 B.C.

Cicero, Quintus Tullius (102-43 B.C.), younger brother of Marcus Tullius C. He was ædile in 67, prætor in 62, and for three years governor in Asia, where his profligate habits gained him an evil character. He distinguished himself as one of Cæsar's officers in Gaul. In the civil war between Pompey and Cæsar he joined the former, but later deserted him and reinstated himself with Cæsar. He was eventually put to death.

Cicerone, a guide, especially for galleries of art or museums or other places of historical interest. The term was first applied in Italy to antiquarians and men of learning, and is supposed to be derived from Cicero as typical of such.

Cicster, see CIRENCESTER.

Cichorieæ, one of the subdivisions of the great order Compositæ. The capitulum consists entirely of ligulate and hermaphrodite florets, and all the species contain latex of a bitter and astringent taste. It is found in

Cichorium Intybus, the common succory, and in the cultivated and wild lettuce. Many species secrete large quantities of starch, and are used as articles of diet. The root of the dandelion, *Taraxacum officinale*, is used as a purgative and as a tonic.

Cicindela, a genus of British tiger-beetles representative of the family Cicindelidæ.

Cicindelidæ, a family of coleopterous insects in the section Adephaga, consists of active, voracious, and terrestrial species commonly known as tiger-beetles. Their colouring is generally rich and metallic, and the insects are to be found on sandy plains or heaths, sometimes on the sea-shore or the shore of rivers.

Cicisbeo, an Italian word applied to a gallant who waits upon a married woman. Among the higher ranks of Italian society it was formerly the fashion for a C. to be in daily attendance upon the married lady of his choice, who could never be seen in public with her husband. The word is synonymous with *cavaliere servente* and *patito*. It originally meant a knot of ribbons, hanging on to the hilt of a sword or to the handle of a fan.

Cicognara, Leopoldo, Count (1767-1834), an Italian archaeologist. He settled at Modena in 1795 and took up politics. In 1808 he became president of the Academy of Fine Arts of Venice, and founded a gallery for Venetian pictures; the same year he published a treatise dedicated to Napoleon, *Del bello ragionamenti*, and a few years later the *Storia della scultura in Italia al secolo di Napoleone*. His works include several valuable catalogues of Italian collections of paintings, etc.

Cicuta, a genus of umbelliferous plants, contains about half a dozen species growing in the N. hemisphere. The best known of these is the water-hemlock or cow-bane, found occasionally by the sides of ditches and ponds of Britain.

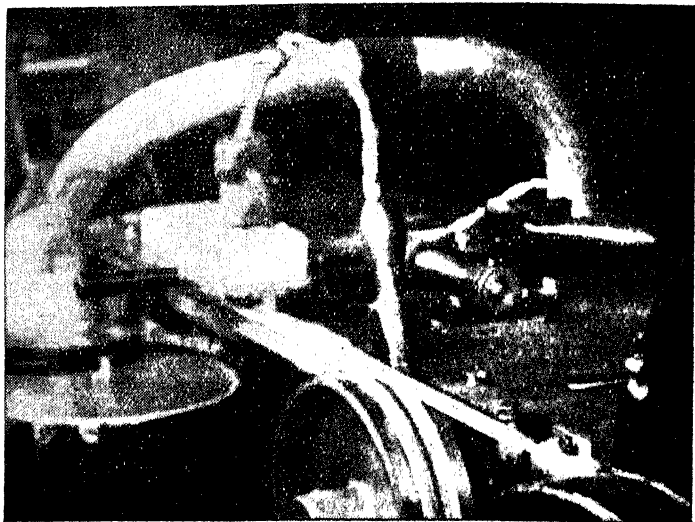
Cid, The, an historical and legendary hero of Spain. The legends which have accumulated round his name for a time gave rise to the theory that he was a purely mythical character, but it has since been proved that he existed, although his deeds, great as they were, are not actually identical with those with which he is credited. He was b. during the fourth decade of the eleventh century, of noble Castilian family. He reached manhood just at the time when Ferdinand died and left his dominions divided amongst his five children. He became a prominent supporter of Sancho of Castile: Spain at this time was equally divided amongst the

Moors and the Spaniards. The Moors also, freed from allegiance to the caliphate, were divided up into small and independent states, continually quarrelling amongst themselves as well as with the Spaniards. The Spaniards, moreover, were not in a very united state. The C. plunged into the wars of the period; he won the title of Campeador by his valour in fighting against Navarre, and he supported Sancho of Castile against his brother Alphonso. Whilst journeying to Seville to collect tribute from one of the subject Moorish rulers, he took part in the fight against the king of Granada, whose forces he was responsible for routing. Returning to Burgos, he found himself the victim of a plot and was forced into exile (c. 1075). After this date the C. became the captain of a free company. He sold his services, now fighting for the Moors, now for the Christians. His valour as a warrior and his capability as a general cannot be doubted, but although he made many attempts to reconcile Alphonso of Castile, his career at this time must be regarded in the light of a mercenary and not a national patriot. He led a successful expedition against Valencia, and for some time ruled over Valencia and Murcia. The Almoravides, whom he had defeated on more than one occasion, at length rose once more against him, and although he was not personally defeated, his army and chief lieutenant were. In 1099, worn out with war and grief, he died. The city of Valencia held out for yet another three years, and at the end of that time his body was taken to Burgos and there buried. He has been regarded always as the national hero, and within a century of his death legend after legend had sprung up concerning him. Over 200 ballads still exist which have him for their hero, and which ascribe to him all sorts of wonderful and heroic adventures. The poem *El Cid* itself is but a fragment of some nearly 4000 lines. But these lines all form part of a great rugged epic in which the national hero of a national Spain struggles against the Moors. He combines in his person the highest conception of valour and courtesy. He was indeed the greatest of all guerilla warriors and generals, and perhaps this is the best reason why he should for all time be held up by the Spaniards as the national hero.

There is a translation of the *Cid* by J. Ormsby. See also Southey's *Chronicles of the Cid*; H. Butler Clark's *The Cid Campeador*, 1897.

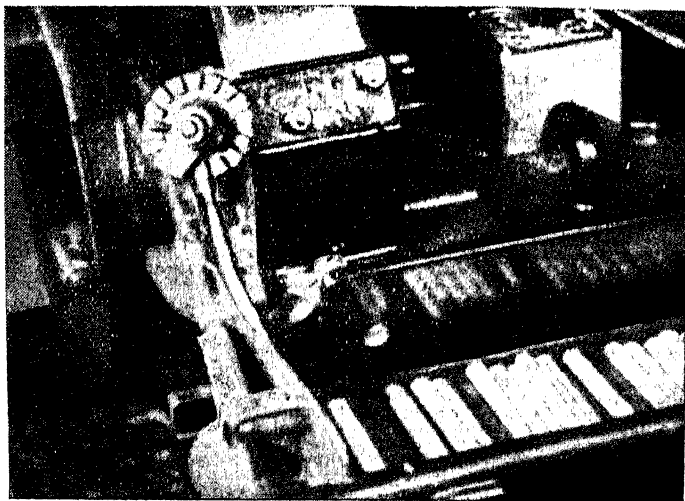
Cider, an alcoholic beverage made from the juice of apples. The pro-

portion of alcohol depends on the properties of the fruit employed, the method by which fermentation is carried out, and any subsequent treatment, such as blending with other alcoholic liquors. In England and America C. contains from 2 to 8 per cent. of alcohol, but in certain continental Cs. the proportion may be 10 per cent., or even more. C. containing a large proportion of sugar and comparatively little alcohol is known as 'sweet' C., and the term 'rough' is applied to those Cs. containing little sugar and an appreciable amount of bitter extractives and acetic acid. The chief C. districts of England are the counties of Hereford, Devon, Somerset, Worcester, Gloucester, and to a less extent, Kent and Norfolk; in Ireland C. is made in counties Louth, Cork, Waterford, and Tipperary; large quantities are also produced in the U.S.A. and in the N. districts of France and Germany. The apples used are grown and picked for that purpose, and are usually varieties unsuitable for eating on account of the presence of bitter substances which effectually neutralise the taste of the considerable quantity of sugar. Only sound apples are used, and after picking they are allowed to mellow in a cool dry place, when a further opportunity is provided for detecting unsound fruit. The apples are then crushed in a mill, and the juice is drained from the pulp or 'pomace.' The juice is then placed in casks with large vents and allowed to ferment, a temperature of 55-60° F. being deemed suitable. The casks should be full, in order to give an opportunity of removing the excess yeast as it rises, as this is said to prevent the formation of acetic acid, which would give too astringent a flavour. The period of fermentation is usually a week to ten days, after which the C. is siphoned into casks; these are stored in a cool place and the C. is re-racked in a few months. The good qualities of C. depend on preventing acetification and producing a moderate amount of alcohol. It should be mellow and pleasantly alcoholic, though in some districts a certain amount of roughness or astringency is preferred. Its appearance is improved by the use of a fixing to clear the liquid, and alcohol may be added to increase its strength. C. is produced to the extent of many millions of gallons annually in the United Kingdom; it has long been the favourite beverage of the inhabitants of fruit-growing districts, and has acquired a reputation as a specific for gout. In the States of America in which prohibition is enforced, the manufacture of C. is naturally for-



[Courtesy of Carreras, Ltd.]

In this photograph can be seen the unlimited cigarette, immediately after it has received the tobacco and been stuck, and just as it is disappearing into the cutting machine



[Courtesy of Carreras, Ltd.]

The other side of the cutting machine, from which cigarettes come out at the rate of 1000 a minute

bidden by the Volstead Act, but exception is made in the case of sweet C., which contains a minimum of alcohol and is non-intoxicating. Owing, however, to the difficulty of keeping it in an unfermented condition, sweet C. is not sold in any great quantities in the prohibition area. The making of non-intoxicating C. and fruit juices for home consumption only is permitted, and the exact percentage of alcohol is not taken into account by the Bureau of Prohibition so long as the C. is incapable in itself of causing inebriety. Of recent years in England several manufacturers have bottled various forms of apple juice of a teetotal nature under fancy names derived from *cider*; these are extremely palatable, and often so closely resemble sweet C. that only an expert could detect the difference.

Ciechanow, a tn. in the government of Plock, Poland, 55 m. N.W. of Warsaw. Pop. 12,000.

Ciego de Avila, a tn. in the prov. of Comagney, Cuba, with sugar factories. Pop. 16,400.

Cielo dal Camo, or **Ciulo d'Alcamo**, an Italian poet, *b.* at Alcamo near Palermo, who lived at the end of the twelfth and beginning of the thirteenth centuries, and was the first to write poetry in Italian. Of his works only one poem remains, published in 1661. See Alessandro d'Ancona's works on Italian literature.

Ciénaga, or **San Juan**, a tn. in Magdalena, Colombia, near the C. Grande, or lagoon of Santa Marta, from where it is distant 22 m. Pop. 24,710.

Cienfuegos, a tn. in Cuba, 42 m. N.E. of Trinidad. It is situated on a fine, sheltered harbour, and is an important seaport of Cuba. It has an active trade in sugar. Pop. 82,092.

Cienfuegos, see ALVAREZ DE CIENFUEGOS NICASIO.

Ciezo, a tn. in Spain in the prov. of Murcia. It lies in the Segura Valley, with mountains on the N., and a fertile plain on the S., which produces grain, wine, olives, and fruit. Pop. 16,030.

Cigala, **Lanfranco** (c. 1218-78), an Italian poet, *b.* at Genoa. His poems are concerned principally with political subjects, such as Louis IX. and his crusade. His love poems deal with two Provençal ladies, Adalais de Vidalhana and Salvaja. Thirty only of the poems have been preserved, and these have never been critically edited. In 1241 he was sent by his fellow countrymen to obtain a treaty of peace from Count Raymond Berengar V. of Provence. Upon his return to his native town, he was appointed judge, 1243, and in 1278

he was made consul. He is supposed to have been murdered near Monaco the same year.

Cigar, see TOBACCO.

Cigarette, defined as a small cigar. Cigarette smoking has increased, especially since the Great War. In U.S.A. the yearly consumption is 900 per head, and the manufacture of Cs. is about 120,000 millions a year. The total inland revenue from this is about 360 million dollars, but in Great Britain there is no tax on manufacture, tobacco being taxed by import duties. About 15 million lb. of C. are exported annually from Great Britain. Different kinds of C. are Virginian, made from the light Virginia leaf; Turkish, which have the finest flavour and are blended from tobacco grown in Turkey and Macedonia; and Egyptian, a mixture of Turkish with a darker leaf. Blended Cs. are popular in America, and these together with Virginian are nearly all machine-made. The damped leaf of Virginia tobacco is stripped from its stalk and is finely cut in a cutting machine. It is then slightly dried. In the cigarette-making machine are disks of paper. The paper unwinds, is stamped with the maker's name, receives the tobacco, is cut off and stuck, making a long C., which is then cut into even lengths. Two people are required to manage a machine that can make 1000 Cs. a minute. There are also machines for sorting tobacco from the paper of faulty Cs. and for making and filling packets. Turkish Cs. are always hand-made. The Turkish tobacco is blended and damped. It is then cut by machine or hand, the leaves being so small that they are not separated from the stalk. Many Turkish Cs. are made in Great Britain. Girls are given hand-made or machine-made paper C. cases. These they fill with tobacco pushed through a rolled sheet of paper. The surplus tobacco each end is then cut off with scissors and if required the end of the C. is tipped.

Cigliano, a tn. in prov. of Novara, Piedmont, Italy, 32 m. S.W. of Novara. Pop. 6000.

Cignani, **Carlo** (1628-1719), Italian painter, *b.* at Bologna; a pupil of Battista Cairo and Francesco Albani, he derived his inspiration from Correggio. His best known work is the 'Assumption of the Virgin,' at Forti. Others are: 'Entry of Paul III. into Bologna'; 'Francis I. Touching for King's Evil'; 'Power of Love,' painted on the wall of the palace at Parma; and 'Adam and Eve,' at The Hague.

Cignaroli, **Giovanni Bettino** (1706-70), Italian painter, who in 1769 be-

came director of the Academy at Verona. He belonged to the late Venetian School.

Cigoli, Lodovico Cardi da (1559-1613), Italian painter, architect, and poet, *b.* at Cigoli, in Tuscany. He was a pupil of Alessandro Allori and Santi di Tito, but he followed the great Florentine painters and especially Correggio, being known as the Florentine Correggio. His 'Ecce Homo,' which gained a prize against Passignani and Caravaggio, was taken to France by Napoleon, but restored to Florence in 1815. His paintings include 'St. Peter healing the Lame Man,' in St. Peter's at Rome; 'Conversion of St. Paul,' in the church of San Paolo fuori le Mura; 'Story of Psyche,' in fresco at the Villa Borghese; and a 'Martyrdom of Stephen.' Tradition says he *d.* of a broken heart because his last work, a fresco in the Roman church of Santa Maria Maggiore, was out of drawing.

Cilia are minute, fine-hair-like protoplasmic processes attached to one or both ends or the sides of some bacilli, by means of which they propel themselves. Bacilli possessing them are termed 'motile.' Cells with *C.* attached also line some parts of many-celled animals.

Ciliata, a division of the Protozoa, composed of the infusorians which have a mouth and anus, move and feed by means of cilia, and usually possess undulating membranes near the mouth, membranelle, and cirri. The body is nearly always surrounded by a thin layer of cuticle, contains many nuclei and several contractile vacuoles. Reproduction is generally by means of division.

Cilicia, a district of Asia Minor, along the S. coast between Syria and Pamphylia, which before the Great War was included in the Turkish vilayet of Adana. In anct. geography it included the valley of Adana and Tarsus, bounded by the Mediterranean on the S., Mt. Taurus on the N., and Amanus on the E. It was part of the Persian empire until Alexander's conquest, 331 B.C. At his death it fell to Ptolemaic rule and later to the Seleucids. The inhabitants of the mountainous districts became famous pirates. In 64 B.C. it was subdued by Pompey and made Rom. territory. It formed part of the Osmanli empire in 1515. In 1833 it was ruled from Cairo, but was evacuated by Mehemet in 1840 and given back to the Turks. It is now comprised in the vilayet of Adana in Turkish Asia Minor. Only ruins remain of its two great towns, Tarsus and Soli, once centres of Gk. civilisation. *C.* was occupied by General

Allenby's troops in the Great War soon after the armistice of Oct. 31, 1918, was signed with the Turkish commander-in-chief, the object of the occupation being the protection of the Baghdad Railway (*q.v.*). The policy adopted by Nihad Pasha, who had succeeded to the command of the second Turkish army E. of the Taurus in Nov. 1918 of leaving behind large numbers of Turkish soldiers in *C.* as 'gendarmerie' and the agitation which his agents encouraged produced a disturbed state in *C.* The presence of Armenian troops, who were naturally mindful of the wrongs suffered by their countrymen in the past, accentuated the unrest between the Turkish and Armenian elements of the population. Collisions between them were frequent, and at the beginning of 1919 General Allenby decided to reinforce the garrison. The arrival of these reinforcements and the reduction of the Turkish gendarmerie restored confidence and security. By the Treaty of Sèvres (*q.v.*) part of *C.* was granted to France, but in 1921, after serious conflict with the Nationalist forces, France abandoned all claim to the district. The products of the district include corn, wool and sesame.

Cilician Gates (Ghulek Boghaz), the narrow pass over the Taurus range in Asia Minor. The great highway led from the W., on a long rough descent from the central plateau to the valley of Adana and Tarsus. At the gates themselves the width of the road is 25 ft.

Cilli, a tn. in Yugo-Slavia, lies picturesquely on the l. b. of the Sann, having remains of ancient walls and towers. It was besieged by the Turks in 1492. Pop. 7750.

Cima, Giovanni Battista, called **Cima da Conegliano** (c. 1460-1518), an Italian painter. His work resembles that of Giovanni Bellini, of whom he is believed to have been a pupil, and consists of landscapes, altar-pieces, scenes with architectural backgrounds, and a few classical pictures. In various churches at Venice are to be found his 'Saint John the Baptist'; 'Saint James and Saint Nicholas'; and 'Saint Thomas touching the wounds of Christ.' Other of his works are at Milan, Munich, and Dresden. In the Louvre is his 'Virgin and the Child Jesus,' and in the National Gallery, London, are some panels.

Cimabue, Giovanni (1240-c. 1302), an Italian painter, *b.* in Florence, the family name being Gualtieri. Tradition credits him with being the greatest artist of his time, but much of the work attributed to him is

not authenticated. His influence on the art of the period resulted from his attempt to get away from the severity of the earlier Italian painters and to introduce a softer yet more virile style, which later developed in his pupil Giotto, whom he is supposed to have found as a child drawing on a slate with a piece of coal, and brought to Florence to teach. His most famous painting is a 'Madonna and Child with Angels,' which forms the altar-piece of the chapel of the Rucellai in St. Maria Novella, Florence. Other Madonnas are to be found in the Academy of Arts at Florence, the National Gallery, London, and also at the Louvre. He is also credited with some frescoes in the church of St. Francesco, Pisa; his most famous work is a mosaic in the cathedral at Pisa, 'Christ in Glory between the Virgin and John the Evangelist.' He is buried in the cathedral at Florence. See Cole and Stillman, *Old Italian Masters*, 1892; Mrs. Ady, *Painters of Florence*, 1900.

Cimarosa, Domenico (1749-1801), an Italian musical composer, b. at Aversa, Naples. His first comic opera, *Le Stravaganze del Conte*, composed when he was twenty-three, was a great success. His *opéra bouffe*, *Il Matrimonio segreto*, is sometimes still performed. His serious opera, *Gli Oraszi ed i Curiatii*, is a weak echo of Mozart.

Cimbex, a genus of hymenopterous insects in the sawfly family, Tenthredinidæ. The species are often larger than bees, although most of the other members of the family are small and inconspicuous. The larvæ are often very destructive to vegetable life, e.g. *C. Americana*, which is known to destroy large elm-trees.

Cimbri, or **Kimbri**, an ancient people whose original home and location have been a matter of much dispute, but they are now generally believed to have belonged to the Teutonic race. Pliny writes of the peninsula of Jutland as the Cimbric Chersonese; Pomponius Mela that the C. and Teutones lived on the Sinus Codanenses, i.e. the S.W. corner of the Baltic. In Ptolemy's map Jutland is also marked as the Cimbric Chersonese. They may probably be traced to the province of Aalborg in Jutland, which was earlier known as Himmerland, a name which may be connected with Cimbri. Former authorities who believed they were Celts pointed to Cymry, the Welsh. The C. were certainly the first Teutonic people the Romans encountered; at the end of the second century, B.C. they invaded Gaul, Illyria, and Italy, driven, as it

was believed, from their home by inundations of the sea. They wandered about the Danube for some time, fighting with the various Celtic tribes settled there. In 113 B.C. they first appear in Rom. history, when the consul Cn. Papirius Carbo was defeated by them at Norcia (Carinthia). They demanded land, which was refused. They then moved W., and in 109 B.C. defeated the consul M. Junius Silanus in the S. of Gaul. In 105, led by their king Boiorix, they annihilated the Rom. army under Cn. Mallius Maximus and Caepio at Aransio (Orange). Turning off towards Spain, they were driven back, and in 103 overran Gaul as far as the Seine, where the resistance of the Belgæ forced them S. once more. They were now reinforced by the Teutones, and moved S. with the intention of invading Italy and conquering Rome. They divided their forces; the Teutones to take the W., the C. the E. passage of the Alps. At Aquæ Sextiæ (Aix), 18 m. N. of Marseilles, Caius Marius, the Rom. consul, inflicted a total and crushing defeat on the Teutones, 102 B.C. The C. had passed the Alps to the E., and had forced the other Rom. army under Lutatius Catulus beyond the Adige and the Po. Marius followed up his victory over the Teutones by a still more crushing blow upon the C. on the Raudine plain, near Vercellæ, annihilating their forces and slaying their king Boiorix. By these two victories Marius saved Rome from a disaster probably as great as that inflicted on her by the Gauls at the Allia in 390 B.C.

Cimex, the typical genus of the Cimicidæ, contains few species and none with which mankind would not gladly dispense. *C. lectularius* is the bed-bug. See BUG.

Cimicidæ, a small family of hemipterous insects in the section Heteroptera, is represented in most lands where civilisation is predominant. The insects are parasitic on various vertebrates, such as men and birds, but are in turn preyed on by larger insects. The chief genus is *Cimex* (q.v.).

Cimicifuga, a genus of ranunculaceous plants, consists of perennial herbs with divided leaves and racemes of whitish flowers; the roots act as drastic purgatives, and are poisonous.

Cimiez (anct. Civitas Cemeneliensis), a residential quarter 2½ m. from Nice, S. France, with many fine hotels and villas. A favourite resort of Queen Victoria.

Ciminna, a tn. in Sicily, 20 m. S.E. of Palermo. Pop. 6320.

Cimmerii, the name of an anct.

people of the far W. of Europe, first mentioned by Homer, and living on the banks of a stream in darkness and mist. (*Odyssey*, xi. and xiv.). They are talked of by Herodotus in his account of Scythia, who says they were the early inhabitants of S. Russia, compelled by the Scyths to flee into Asia Minor, where they dwelt for about a century. About 650 B.C. they invaded Lydia, destroyed Sardis and Magnesia, and between 605 and 556 B.C. were entirely defeated by Alyattes, king of Lydia. They have been identified with the Cimbrri of Jutland, but only on account of similarity in name.

Cimolite, a variety of clay (hydrous aluminium silicate) which is used as fuller's earth, that is, to absorb grease and oil from cloth.

Cimon (c. 515-449 B.C.), a celebrated Athenian general, was the son of the great Miltiades, and Hegesipyle. He distinguished himself by his valour in the Persian wars, and was, with Aristides, put in command of the Gk. fleet sent to Asia against the Persians. He was later in command of the Gk. naval forces, and founded a colony on the isle of Scyros in 476 B.C. He achieved a dual triumph in 466, defeating the Persian fleet off the R. Eurymedon in Pamphyla, and later in the same day winning a battle on the land. He was for some time one of the most prominent members of the aristocratic party in Athens; in pursuance of his policy of friendliness to Sparta, he led an Athenian force to aid them when the helots revolted in 462 B.C. The Spartans, however, dismissed with scorn his proffered aid, and the Athenians in anger ostracised him in the following year on a pretext of corruption. He was recalled in 457, and completely defeated the Persians off the coast of Cyprus; the victory was due to him, but he *d.* before the engagement.

Cinchona, a genus of Rubiaceae, consists of about forty species which are indigenous to the E. slopes of the Andes, but are also cultivated in Java, S. India, and the E. Indies. The trees belonging to this genus vary very much in size, have ever-green leaves, and flowers in panicles, white or pink in colour. The useful part of these trees is their bark, from which quinine is manufactured, this medicine first being used by the Countess of Chinchon, wife of the ruler of Peru, to cure a fever, about the year 1638. After this it was taken to various places in Europe by the Jesuits, and obtained the name of Jesuits' bark. The work of obtaining the bark of these trees is carried on by Indians, who have to make their way through thick forests to the

trees. The latter are detached from any vegetation growing round the stem, and after having been felled as near the root as possible, have their bark cut off both from the main stem and the branches. It is then dried and packed, the thinner bark of the branches curling up to form 'quills.' This method, however, was seen to be very expensive and was leading to the extermination of the trees. Accordingly, plantations were tried in other parts, especially Algeria, Java, the Himalayas and Ceylon. Cinchonidine, cinchonine, and other alkaloids are obtained from the bark in addition to quinine.

Cinchona Bark Alkaloids. The term alkaloid (*i.e.* 'like an alkali') is applied to certain basic substances derived from plants and chemically related to pyridine, quinone, etc. They are generally of considerable physiological potency and many are valuable drugs. Several distinct members of the group have been obtained from cinchona bark, the most important being *quinine*, $C_{20}H_{21}O_2N_3$, and *cinchonine*, $C_{21}H_{23}ON_2$, together with *quinidine*, an isomeride of quinine, and *cinchonidine*, an isomeride of cinchonine. Quinine, which is a specific for malaria and an excellent febrifuge, is a white crystalline solid melting at $177^\circ C$. It readily forms salts, *e.g.* quinine sulphate, and these salts are usually preferred in medicine to the alkaloid itself. Ammoniated tincture of quinine is a solution of quinine sulphate in a mixture of water and alcohol to which a little ammonia has been added. Cinchonine is very similar in constitution to quinine, but a solution of its sulphate does not show the characteristic fluorescence of quinine sulphate solutions. The structure of the cinchona bark alkaloids has been solved only recently, and so far it has not been possible to make them synthetically.

Cinchonine ($C_{21}H_{23}ON_2$), an alkaloid prepared from cinchona, the bark of certain trees grown in S. America and the E. and W. Indies. Cinchona contains five alkaloids, quinine, quinidine, C., cinchonidine, and conquinamine, of which C. and cinchonidine are isometric. C. is similar to quinine in its effect upon the malaria parasite, but is not so active. It also has a tendency to produce convulsive movements in certain patients, which renders it advisable that quinine preparations should be free from C. C. is a colourless crystalline body, insoluble in water. The sulphate is dissolved with difficulty in pure water, but is soluble in acidulated water.

Cinchovatine, or **Aricine** ($C_{21}H_{23}O_2N_3$), a crystalline alkaloid obtained

from the *Cinchona ovata*. It occurs with the alkaloid cusconine in *Cusco Cinchona* bark. The crystals are white and prismatic.

Cincinnati, the second largest city of Ohio, U.S.A., situated on the N. bank of the Ohio R., 270 m. to the S.E. of Chicago. Five bridges and several ferries are the means of communication with Covington and Newport on the opposite side of the river; there are lines of steamers from Pittsburg and New Orleans, and the transport arrangements are good, as C. is the most important port on the Ohio. The land near the river is low-lying and level; this portion of the city is occupied by the commercial buildings. The residential part is on the bluffs which are situated around the valley. There are a number of fine buildings, of which perhaps the best is the Rom. Catholic Cathedral of St. Peter's, which contains the 'St. Peter Delivered' by Murillo. Among other noteworthy examples of architectural art are the U.S.A. Gov. buildings, Masonic Temple, Chamber of Commerce, Oddfellows' Hall, Mechanics' Institution, the Opera House, the City Hall, County Court-house, the United Bank Building, and the new 40-storey skyscraper in Fountain Square. There are 400 churches. The educational institutions of the city include the university of C., with 8604 registered students, a Jewish, a Wesleyan, and two Jesuit colleges, the Mechanics' Institution of Ohio, a theological seminary, two medical colleges, and an art school. Recreation is well provided for by ninety-five parks, of which the finest are Eden Park, situated to the E. of the city, and Burnet-Woods Park. There is a zoological garden. The municipal library contains 700,000 volumes. C. is a commercial centre of the first rank, and its manufactures are varied and important. Among them may be mentioned the manufacture of machinery, shoes, clothing, meat-packing, furniture, earthenware, leather and soap. It is the centre of the American radio industry. It has air-lines to Chicago, Detroit, etc. Eighteen railway lines meet here. It is the terminus of the great Mississippi steamers. Harriet Beecher Stowe lived here from 1832 to 1850, and many fugitive slaves were aided in C. homes in their flight to Liberty. C. was founded in 1788 by a trader chasing Indian horse-stealers down the R. Ohio. He bought 10,000 acres of land at a dollar an acre. Fifty years later refugees from Prussia discovered that grapes grew abundantly in its vicinity, and it became a chief wine-producing centre, and then for a time

Porkopolis, because of its huge pig-industry. There are over one hundred motion-picture theatres. Since 1924 it has been governed by a city manager with a council of nine elected by proportional representation. The average temperature is 55°. As a municipality, C. has a two-fold and unique distinction—it is the only city in the world which out of its own resources founded a university, and the only one to build and own a railway system, the Cincinnati Southern. The latter has for many years been leased by the municipality to one of the big trunk lines. The pop. was in 1930, 449,331, of whom nearly one half are said to have been of Ger. descent.

Cincinnati, Society of the, so named after Lucius Quinctius Cincinnatus, and founded in 1783 by the officers of the U.S.A. revolutionary army. Its membership was hereditary, and was intended to maintain a concerted policy, also to raise a fund for the benefit of widows and orphans of all those who had died in the war. George Washington was its first president-general, and most of the presidents have been honorary members.

Cincinnatus, Lucius Quinctius, one of the earliest and most typical of the Rom. heroes, was b. about 519 B.C. The legend runs that in 485 B.C., when the Rom. army had been cut off by the Æquians, he was called from his plough to become dictator. He overcame the enemy, and after serving the republic, returned to his farm. He was again made dictator in 439 B.C., this time in order to avert, if possible, civil war in Rome. Rivalry was high between the patricians and the plebeians; C. checked the disorder, and caused Spurius Maelius, who was suspected of conspiring to become king, to be executed.

Cincius, Lucius Alimentus, a Rom. historian who flourished in the third century B.C. Very little is known of his life beyond the fact that he took part in the second Punic War, and was taken prisoner by Hannibal, who treated him with courtesy. He wrote works dealing with Hannibal and with Gorgias of Leontium, of which only fragments remain.

Cinder-bed, the name of a stratum of the Middle Purbeck series of the Jurassic system, so called by the quarrymen of the district, and composed chiefly of the aggregated shells of an oyster.

Cineas, a Thessalian, chief adviser and minister of Pyrrhus, king of Epirus. He studied oratory in Athens, and was known as the ablest and most eloquent man of his time. In 280 B.C., after the defeat of the Roms. at Heraclea, he was sent on

a mission of peace to Rome. The terms were rejected through the agency of Appius Claudius Cæcus, the censor, but on being sent again in two years' time, with easier terms, induced the senate to accept his proposals of peace.

Cinematograph, an apparatus for projecting on a screen in rapid succession a series of pictures representing successive stages of appearances involving motion, thus producing the

intervals are short enough they become imperceptible and the spectator receives an impression of continuous movement. The principle of moving pictures was first used in the toy which consisted of a number of pictures representing successive stages of movement bound together in the form of a small book. In 1833, the zoetrope, or 'wheel of life,' was introduced; this consisted of a hollow cylinder furnished with several vertical slots



[Courtesy of British Instructional Films, Ltd.]

A SCENE IN A STUDIO

sensation of a continuously moving picture. Machines similar in principle are known by the names biograph, bioscope, kinetoscope, mutograph, and mutoscope, and the effects they produce are called 'living,' 'moving,' or 'animated' pictures. In every case an 'instantaneous' photograph is projected on a screen for a small fraction of a second, a similarly short interval of darkness succeeds, another picture is presented, and so on. As each image persists on the retina for an appreciable time after the picture is withdrawn, it follows that if the

at equal intervals and mounted to revolve on a vertical axis; the pictures were arranged on the inside of the cylinder, so that they were presented to the spectator through successive slots. In 1877 E. Maybridge obtained a rapid succession of photographic pictures by means of a row of cameras with shutters electrically controlled so as to admit of the 'snapshotting' of the successive movements of a horse. In 1890 E. G. Marey used a celluloid film to take successive photographs, and in the same year Edison con-

trived a machine to reproduce the appearance of the movements depicted by such photographs. The C. film consists of sensitised gelatin mounted on a ribbon of celluloid about one inch wide. When photographs are to be taken, the film is wound round a reel within the camera to any length up to 1500 ft. A mechanism then brings successive portions of the film behind the lens, where it remains stationary for a fraction of a second before being wound up on a second reel. There are many devices for dealing with the jerky movement of the film and the corresponding movements of the shutter. The photographs are developed by being wound round a large cylinder, which revolves at a suitable rate in a trough of developing solution. The film, after developing and fixing, presents a negative picture, and a positive film has to be prepared for use in the projecting lantern. An arrangement of reels and mechanism for intermittent film movement and shutter action has also to be adopted for the lantern, by which enlarged pictures are thrown on the screen at the rate of twenty to thirty per second, corresponding to the rate at which the pictures were taken. The use of a celluloid mount for the film constitutes a danger, owing to the inflammable nature of celluloid. The risk of fire is minimised by the use of a fireproof cabinet fitted with a fireproof shutter to contain the lantern and accessories. Uninflammable substitutes for celluloid have been invented and widely adopted. The C., first looked upon as an interesting toy or as a possible adjunct to scientific research, has become an economic and social factor of considerable importance. Its use as a means of entertainment has led to many attempts at improving and aiding the realistic nature of its effects. More important than mechanical improvements are the development of the subject-matter of the pictures and the appeal of the C. to the mass of the people. When the machine was first introduced, it was sufficient to present pictures involving interesting movement; later, the fascination of the unknown was invoked, and when these to a certain degree palled, recourse was had to 'fake' pictures, and quite suddenly the C. picture came to its present-day function as a form of drama. In 1913 the first long spectacular film, 'Quo Vadis?' was produced in Italy; since then many types of films have been developed. There is the abstract film, which embodies true film qualities, arousing emotion by moving abstract patterns of light and shade; and the fantasy and

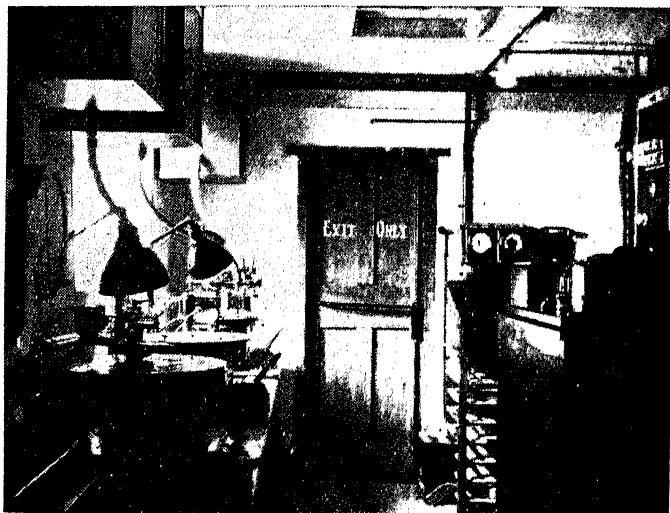
puppet films, requiring magic effects and illusions easily obtained by the camera. Other types are the epic film, which portrays crowds and masses, embodying the spirit of a people, and the interest film, which shows how things are made. These can be combined with a story against a natural background, as in 'Chang,' an American film taken in the forests of Siam. The German film, 'Siegfried,' is an example of the decorative film which is an expensive type and seldom produced. There are also films, chiefly made in Russia, which are constructed on the principle that the camera-lens can follow anything anywhere. This film often has its recorded sound accompaniment. The film-poem is usually described by a series of shots in a longer film, but may exist by itself. It is then a short film, expressing a mood. The news film aims at producing fact without fiction, and this is now accompanied by recorded sound. Past history can be reconstructed and produced as faithfully as possible, an example of a historical film being 'La Passion de Jeanne d'Arc.' The fiction film is the commonest produced to-day. It may be modern comedy, pure comedy, farce, drama, satire, or an unrealistic spectacular film attached to a story. With the introduction of the dialogue film we now have the musical-comedy type of film. The cartoon film is very popular. It is shot from a great number of drawings, an example being Walter Disney's cartoons of *Micky Mouse*, accompanied by synchronised sound. This is a proper use of recorded sound with visual images.

During the Great War the U.S.A. alone were able to develop their film industry, which has assumed vast proportions, particularly at Hollywood, California, where more films are made than in all the rest of the world together; but after 1918 Europe again began making films. This was found to be far more difficult and expensive than hiring ready-made films from America, but some of the best films have been produced in Europe. America has specialised in modern fiction films with sex interest, and has employed the star-system, which is to have well-advertised actors and actresses to play the leading parts. American photography is technically excellent, and their films are conducted on efficient business principles. Charlie Chaplin (*q.v.*), who directs his own films, has produced some of the best American films, notably 'The Gold Rush' and 'The Woman of Paris.'

Films in Great Britain are mostly imitations of German and American

films. The best British films are the nature films made by the British Instructional. In Russia the film is controlled by the Gov. Photography and production are excellent, and the industry is carefully organised, while film production in all its aspects is taught in the schools. Unfortunately the subject-matter of Soviet films is restricted by the enforced use of propaganda. 'Turksib' and 'The Earth' are representative of the best Russian films (both silent). In France film-production has been spas-

achievement, and the expressionistic setting was admirably suited to cinematic treatment. The progress of film photography has followed the work done by Ger. camera men. The flying or moving camera was first used in Germany, and the device of 'panning'—moving the camera horizontally or vertically without changing the position—originated there. The latest development of the C. is the sound film and the dialogue film. The sound film mechanically reproduces sound



[Courtesy of British Instructional Films, Ltd.]

ON THE LEFT ARE THE DISKS RECORDING A 'TALKIE'

modic, but good results were attained with the abstract film. 'Sous les Toits de Paris' is representative of the best Fr. tone films. In the East, Japan is the only country seriously producing films, though China made a good start with 'The Willow-Pattern Legend.' The speed of production is exceptional. A film is completed in a fortnight, while it takes six to eight weeks in Europe and America. German films, which are some of the best in Europe, have been unable to find a world market, although the industry was subsidised by the Gov. after the War. Historical melodrama, studio architecture films, and realistic dramas are the chief types of Ger. films. Psychology plays an important part. 'The Cabinet of Doctor Caligari' was an outstanding

images and visual images. The dialogue film—or 'talkie'—exploited first in America, attempts to reproduce simultaneously the voices and appearances of the actors. The sound is recorded on disks or on a strip at the side of the visual film. Screen developments are the triptych, an ordinary central screen with flanking screens; the magnoscope or enlarged screen; and the stereoscopic screen, intended to give visual images three dimensions. The responsibility for the production of a film falls on the director. He prepares the scenario and arranges the shots, their sequence and their montage. All films are subject to a censorship, in the case of Great Britain by the industry itself. See Ivor Montague, *The Political Censorship of*

Films. Also Paul Rotha, *The Film Till Now*, 1930. See CHRONOCHROME.

In Hollywood, where most of the American pictures are made, it is estimated that the value of studio property is \$58,000,000. The total motion-picture investment in the United States, including cinemas, is stated to be 2000 million dollars, of which 500 millions was spent in equipping cinemas with sound apparatus. There are 22,731 motion-picture houses in the United States with a seating capacity of 11,000,000. Germany comes next with 5267 cinemas and 1,876,000 seats; Great Britain next with 4226 cinemas and 2,200,000 seats; France 4221 cinemas 2,100,000 seats; Spain, 3000 cinemas and 1,468,000 seats. The reason for the decline of the first-class theatres except in the metropolitan cities of the U.S.A. is indicated by the fact that last year the average weekly attendance in American cinemas was 115,000,000 while the whole population of the U.S.A. was 122,775,046.

Cinerary Urns, hand-made vessels of clay, glass, or sculptured marble, in which the ashes of those who had been cremated were preserved. They are relics of the Stone and Bronze ages of N. Europe, while others of a widely different type are found in Rom. tombs. The urn proper used for containing the ashes is a large flower-pot-shaped vessel, and decorated only on the top; but other urns used were the food-vessel variety, rather broad in shape, and standing low, the drinking-cup variety, tall and slim, with beautiful decorative designs covering the whole surface, and a vessel shaped like a cone, decorated, and having two or three perforations through the periphery, and known as 'incense cups.' These latter were probably used to contain the fire with which the funeral pyre was lighted.

Cingoli, a tn. in the prov. of Macerata, Italy, occupying the site of the anct. Cingulum.

Cinisi, a tn. in Sicily, 15 m. N.W. of Palermo. Pop. 8850.

Cinna, Caius Helvius, a Latin poet, who was tribune in 44 B.C. His chief work is a poem called *Smyrna*, of which only fragments have survived; it was, according to Plutarch, of an obscure nature, and had taken the poet eight years to write. He was attending the funeral of Caesar, with whom he had been friendly, when the populace mistook him for Lucius Cornelius C., the prætor, and lynched him. Shakespeare has included the incident in his *Julius Caesar*.

Cinna, Lucius Cornelius (c. 84 B.C.), a Rom. statesman, was leader of the popular party at Rome. He was

elected consul in 87 B.C.; Sulla only permitted this on condition that C. pledged himself not to tamper with the constitution of the state. C., when elected, promptly broke his pledge, and impeached Sulla. The other consul, Octavius, drove him out of the city; C., however, enlisted the aid of Marius and his army, and returned to capture Rome. Every one who was unfortunate enough to have incurred their enmity was put to death, and the loss of life through these massacres was very great. In 86 C. was consul with Marius, and held office in the two following years, after Marius' death. When, however, he ordered his soldiers to march into Greece to oppose the returning Sulla, they revolted and murdered him.

Cinna, Lucius Cornelius, son of the more famous Cinna, was an adherent of Lepidus and Sertorius, and took part in the revolution of 78 B.C.

Cinnabar, the principal ore of mercury and the sulphide HgS. It crystallises in small rhombohedral crystals with an adamantine lustre. The usual method of obtaining mercury from the ore is by roasting the ore when the sulphur is oxidised off into sulphur dioxide, and the mercury distills off and is condensed in a series of flues or chambers. It is found in Almaden in Spain, California, the Bavarian Palatinate, and Idria in Calabria.

Cinnamic Acid ($C_6H_5 \cdot CH \cdot CH \cdot COOH$), *phenylacrylic acid*, a constituent of storax (*Styrax officinalis*), from which it may be extracted by warming the resin with caustic soda. C. A. is a crystalline solid melting at 133°C.

Cinnamomum, an important genus of Lauraceæ, confined to the E. Indies. There are over one hundred species, many of which yield either cinnamon or cassia, two aromatic barks. *C. zeylanicum* produces the finest cinnamon, and is cultivated in Ceylon; *C. Cassia* produces cassia, and is often used to adulterate cinnamon; *C. camphora* is the plant from which camphor is distilled. See separate articles for various products.

Cinnamon, the bark of certain small trees belonging to the genus *Cinnamomum* (q.v.). The bark is taken off, and when dry curls up. It is the oil of C. which produces its flavour, and this is prepared from pieces of bark which are first soaked in sea water and then distilled. The oil itself is of a yellowish-brown colour. C. is useful both as a medicine and as a flavouring in cooking. Cassia, which is produced from another variety of the genus, is sometimes used instead of C., but is much coarser.

Cinnamon Stone, a variety of garnet so called on account of its resembling cinnamon in its yellowish-

brown colour. It is found in Scotland, Ireland, Ceylon, and the U.S.A., sometimes occurring in shapeless masses and sometimes in the form of crystals. The variety found in Ceylon is used in jewellery work.

Cino da Pistoia (c. 1268-1337), Italian poet and lawyer. He wrote a commentary on the first nine books of Justinian's *Codex*, and this was much read, and after 1843 was many times reprinted. He was a friend of Dante, who addressed two sonnets and a letter to him. He was possessed of much genuine merit and passion, which stand forth in many of his poems, though at times he is obscure in expression.

Cinque-cento, an Italian word, meaning literally 500, but used as a contraction for 1500. It is used to describe the new style in all departments of culture which began to flourish in Italy about the year 1500. The whole civilised world was in reality about to revert to the anct. style of art; everywhere about this period men were seeing the decadence of the Gothic. In France, in Germany, and in England the change was not definitely to come about till later, and when it did come was to be preceded by a period of transition. Thus the new movement was characterised by a revival of classical taste and design in all the arts; C. may thus, when used as an adjective, be said to correspond to the Fr. 'renaissance' or 'style François premier,' and to the Eng. 'Elizabethan.' The change in Italian methods commenced in the fifteenth century; Ghiberti and Donatello were the pioneers in sculpture, Alberti and Bruneschelli in architecture. By the end of the century the standard of Bruneschelli, in particular, had been recognised throughout the country. The best examples of C. work in architecture are St. Peter's and the Vatican, in Italy; the Louvre, etc., in Paris; and St. Paul's Cathedral, in London. Among the famous cinquecentiste may be mentioned Michelangelo and Benvenuto Cellini, in sculpture; Titian, Leonardo da Vinci, Bramante, and Correggio, in painting; and Berni, Ariosto, and Tasso, in literature.

Cinquefoil, in architecture, an ornament consisting of five lobes meeting in points, called cusps, and tangent to the inner side of a larger arc. Arches may be formed with a C.



CINQUEFOIL

Cinque Ports, five (*cinque*) large ports on the S.E. coast of England, which once had special privileges and duties. The original five ports were—Dover, Sandwich, Hastings, Romney, and Hythe; later the 'ancient towns' of Winchelsea and Rye, and other places were added. Their origin dates back for a long time, possibly to the Rom. times; they were of considerable importance in the A.-S. period, and in a charter of the reign of Edward I. a reference occurs to a previous charter given by Edward the Confessor. After the Norman Conquest, William I. made this line of coast into an entirely separate territory under the jurisdiction of a warden, corresponding to the Count of the Saxon Shore (*comes littoris Saxonici*). This official had his residence in Dover Castle, and exercised civil, military, and naval authority, combining the functions of sheriff, *custos rotulorum*, lord-lieutenant, and admiral. The chief duty of the C. P. in early times was to furnish shipping for the state. In the reign of Edward I. they were bound to provide not fewer than fifty-seven ships for a period of fifteen days without recompense, but in return for this they had many privileges, such as exemption from taxes, the power to make their own bye-laws, etc. The C. P. played an important part in the history of the thirteenth and fourteenth centuries. Until 1688 one or two of the members for each of the ports were nominated by the lord warden, but after that year they were elected. The Bills of 1832 and 1835 reduced the members for the C. P. from sixteen to three, and since then they have been merged with the county. The Municipal Reform Act has broken up the anct. organisation, and though the anct. courts of Shepway, Brotherhood, and Guestling still meet sometimes, it is as a matter of form. The civil jurisdiction of the lord warden has been abolished, but he still exercises maritime jurisdiction, presides at the court of Shepway, and appoints justices of the peace within the jurisdiction of the ports; he has an official residence at Walmer, and receives £3000 a year for his office.

Cinthio, the name assumed by Giraldo, Giovanni Battista (1504-73) (q.v.).

Cintra, a tn., Portugal, in the prov. of Estremadura, 16 m. N.W. of Lisbon. Owing to its picturesque situation, sheltered by hills, and its agreeably mild climate, it is a favourite resort for the wealthy Lisbon residents. There is an anct. royal palace, partly of Christian and partly of Moorish architecture. C. is noted for the

convention which took place in 1808. Pop. 6000.

Cione, Andrea di, see ORCAGNA.

Cionus, a genus of Curculionidæ, or weevils, contains several British species. These are small beetles, living both in their larval and imaginal states upon plants.

Ciotat, La, a seaport of France, in the dept. of Bouches-du-Rhône. It is situated on the Mediterranean coast, 20 m. S.E. of Marseilles, and has a fine harbour. There is a good coasting trade and a noted coral fishery; ship-building is carried on. Pop. 11,880.

Cipher, see CRYPTOGRAPHY.

Cipolin, a crystalline rock, usually containing mica.

Cipolla, Carlo, Count (b. 1854), an Italian historian, b. at Verona, and since 1882 has held the position of professor of modern history at Turin University. He has written several books on the history of Venice and Verona, also *Storia delle Signorie Italiane dal 1313-1513*, and *Una Congiura contro la Repubblica di Venezia negli Anni 1522-9*. He has also edited various works.

Cipriani, Giovanni Battista, or **Giambattista** (1727-85), a Florentine artist who studied at Rome and, later, settled in London. His graceful drawings soon won popularity. His pictures are not of so high a quality as his designs, which were engraved by Bartolozzi. Designed the diploma of the Royal Academy.

Circæa, a genus of Onagraceæ occurring in cold climates. There are two species in Britain, one of which *C. hutchiana*, the enchanter's nightshade, grows in damp and shady places.

Circars, The Northern, an anct. Indian ter. on the E. coast of India, stretching along the shores of the Bay of Bengal. The districts now corresponding to them are Ganjam, Vizagapatam, Godavari, and Krishna. They became the possessions of the East India Company.

Circassia, the name of a region in the Caucasus, lying in the basin of the Kuban, a portion of the Upper Terek, and S. of the Caucasus on the Black Sea from Anapi to Gagri. Formerly it was inhabited by the Circassians, but is now a part of the Russian province of Kuban. The Russian name for the Circassians is Cherkesses, the Osset name Kazaks; the Circassians call themselves Adighés. When C. was surrendered to Russia by Turkey in 1829, the people refused to submit, and it was not till 1859 that they were finally conquered. After the conquest large numbers emigrated to Turkey, principally in Bulgaria and Thessaly.

Most of the common people belong to the Christian religion, though the higher classes on the whole are Mohammedans. The number of the Circassians dwindled during the nineteenth century, as although they numbered 500,000 in 1850, they were not more than 100,000 at the end of the century. See *Anthropological Researches in the Caucasus*, 1855-57, by Ernest Chantre.

Circe, the daughter of Perse and Helios and sister of Æetes. She lived on the island of Æeæ, and when Odysseus' followers were cast on this island she gave them her magic cup to drink from and they were turned to swine. She was unable, however, to bewitch Odysseus, as Hermes had provided him with a herb which enabled him to drink without being transformed. He also compelled C. to re-transform his followers, and spent a year on the island of Æeæ with her.

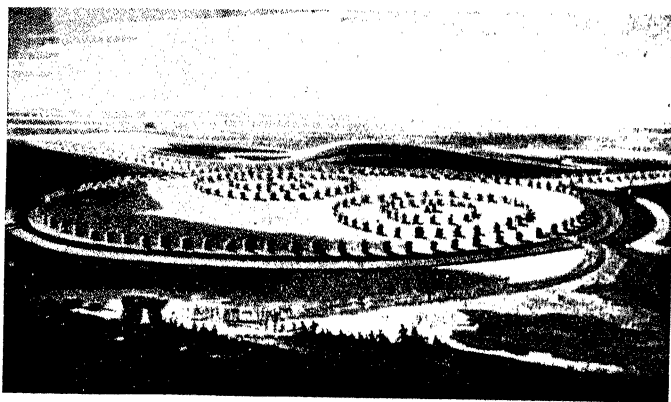
Circinus, 'the Compasses,' a S. constellation noticed by Lacaille, who placed it below the Centaurus and not far from the S. Pole. It contains a white star of 3'4 magnitude, with a brick-red attendant.

Circle, a figure enclosed by a curved line called the *circumference* which is at all points the same distance from a fixed point called the *centre*. A C. is, therefore, strictly speaking, the space included by the circumference. The distance from centre to circumference is called the *radius*, and a straight line drawn through the centre and terminated in both directions by the circumference is called a *diameter*, which is therefore twice the radius in length. A part of the circumference is called an *arc*, and the straight line joining the ends of an arc is called a *chord*. The figure enclosed by an arc and its chord is a *segment*, and that enclosed by two radii and the arc intercepted by them is a *sector*. An ancient problem is the determination of the ratio of the length of the circumference of a C. to its radius. This ratio is the same for all Cs., and is an incommensurable quantity, i.e. it cannot be stated exactly in figures. It is represented by the Greek letter π , and its value may be approximately rendered by the following quantities: $\sqrt{10}$, $\frac{22}{7}$, $\frac{355}{113}$, 3.1416, 3.1415926535. In the same C., or in equal Cs., equal angles are subtended by equal arcs and by equal chords, therefore divisions of the circumference is a convenient method of measuring angles. The angle at the centre subtended by one quarter of the circumference is a right angle; this is divisible into 90 degrees, each degree into 60 minutes, and each minute into 60 seconds. In the

circular measure of angles as employed in trigonometry, the unit is that angle subtended by a part of the circumference equal in length to a radius. The unit is called a *radian*, and it follows that there are 2π radians in 4 right angles. The properties of the C. are discussed in Euclid's *Geometry*, book iii.

Circle, Magic, a piece of ground chosen in some dark and lonely place, used by sorcerers and magicians as a place of refuge against evil spirits. The whole area of ground varied, sometimes being nine feet square, and on this area were marked out two concentric circles. Within the

being mere boulders rolled together, or else long stones, wedged upright by smaller ones inserted round their bases, in a hole in the subsoil specially prepared to receive them. These stone circles are often, but wrongly, called 'Druidical circles' in Great Britain, and are known as 'cromlechs' in France. One of the greatest and most interesting stone circles is Stonehenge, a circular group of gigantic stones standing on Salisbury Plain, situated amidst an extensive group of prehistoric barrows of the Bronze Age. Another large circle of unpolished stones is at Avebury, Wilts. The largest of the Scottish



RESTORATION OF STONE CIRCLES, AVEBURY
(From an old Print)

smaller sat the wizard, for it was a common belief that it was only by remaining on this particular piece of ground that he could prevent the evil spirits, with whom he was dealing, from carrying him away with them.

Circle, Quadrature of the, see QUADRATURE.

Circles of Stones, standing stones formed in circles. They are unhewn and set up at intervals round a circular space, generally on level ground, though they are occasionally found on the slightly sloping side of a hill. They cover a space of ground varying from 20 to more than 100 ft. in diameter, and the number of stones forming the circle also varies. It is impossible to ascertain exactly what the original number may have been, as most stone circles now existing are in a state of dilapidation, sometimes

stone circles is that of Stennis in Orkney, 4 m. from Stromness. Near this particular circle stood the perforated stone through the opening of which it was customary in the eighteenth century for young men and women of the district to plight their troth by joining hands, the promise thus made being regarded with superstitious reverence. Scotland contains many varieties of stone circles, and excavations have disclosed burials of the Bronze Age, chiefly after cremation. In many parts of Europe are found circles of small boulder stones, indicating that the space thus enclosed has been reserved for burial deposits in prehistoric times. Few stone circles are met with in France, and very little is as yet known of the contents of those found. The most important is at Carnac, Brittany. S. of the Baltic, circles of standing stones are

rarely met with. See Ferguson's *Rude Stone Monuments*, 1872; Anderson's *Scotland in Pagan Times*, 1886; and Sir Henry James's *Plans and Photographs of Stonehenge*, 1867.

Circleville, a tn. in Ohio, U.S.A., in co. Pickaway, was laid out within a prehistoric circular embankment of which no trace now remains, there is an annual pumpkin show and vegetables are canned. Pop. 7369.

Circuit, Electric, see ELECTRIC CIRCUIT.

Circuits, the periodical progresses of the judges of the King's Bench Division of the High Court of Justice through the several counties of England and Wales, for the purpose of administering justice in civil and criminal matters. The C. system dates almost from the reign of Henry I., who organised C. of the judges of the *curia regis* and Barons of the Exchequer partly for judicial, but principally for financial purposes. The great function of these old itinerant justices was that they linked up the local with the central administration. In 1173 the country was divided into six C. for exchequer purposes. The judicial functions were further developed by commissions of justices to try criminals presented by the hundred and the shire. Edward I. replaced the irregular C. of the itinerants by regular C. of the judges of assize; the country being divided into four C. in 1293, with two judges to each division. The present assizes may be said to date from the close of the thirteenth century, when the judges of assize were empowered to act under commissions of *nisi prius* (*q.v.*), oyer and terminer (*q.v.*), and gaol delivery. The regulation of the present C. was originally provided for by the Judicature Act, 1875, but this is now replaced by the Supreme Court of Judicature (Consolidation) Act, 1925. At the present day the C. comprise eight divisions: the S.-E., Midland, N., N.-E., Oxford, W., N. Wales and Chester, and S. Wales. The winter assizes commence about the middle of Jan.; the summer, the middle of May; and the autumn, the middle of Oct. No civil (*nisi prius*) business is taken at the autumn assizes except in Bristol, Devon, Glamorgan, Lanarkshire, and Suffolk. There are additional assizes in May for Lancashire and Yorkshire. In the U.S.A., there are nine Federal Circuit Courts of Appeal, each Circuit having appellate jurisdiction over several Federal district Courts. The President appoints the judges to these Circuit Courts, but judges of the district Courts are eligible to

sit. These Courts have appellate jurisdiction over most of the issues cognisable by the District Courts, though some issues go direct to the Supreme Court. See also ASSIZE.

Circular Note, see CREDIT, LETTER OF.

Circular Numbers, those which form the last digit of any power to which they are raised. Thus every power of five ends in five.

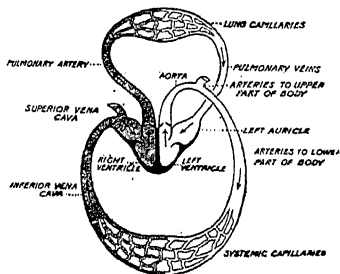
Circulating Decimals, see DECIMAL FRACTIONS.

Circulating Library, see LIBRARIES.

Circulation, see MONEY.

Circulation of the Blood. Harvey in 1628 was the first to demonstrate that the blood circulates. The ancients had conceived that the arteries held air, and it was generally held prior to Harvey that the blood was pumped from the heart to the veins, and that the blood moved in a to-and-fro movement. He, however, showed that the veins have valves which prevent the blood flowing back, and at the same time he proved that the arteries contained blood, not air. The circulating system consists of arteries, veins, capillaries, and the heart. The arteries are tubes, with stout elastic walls well provided with muscular tissue. They branch in their course, becoming thinner-walled and smaller as they subdivide, and finally they pass into the capillaries, which are very minute and walled only with a single layer of cells. These capillaries run through the tissues and unite to form small veins, and these in their turn are gathered together to form the large veins. As has been pointed out, these veins often possess valves which prevent a reflux of blood into the arteries. The heart (*q.v.*) is a four-chambered muscular bag, which by its alternate contraction and dilation acts as the pump which maintains the circulation through the body. These four chambers are divided into pairs, the right and left ventricles, and the right and left auricles. The auricles are in communication with the ventricles, but the right chambers of the heart are only connected to the left in the indirect manner shown in the description of the circulation. The vessels which lead from the ventricles are respectively termed the pulmonary artery on the right and the aorta on the left. There are valves between the auricles and the ventricles, that on the right side consisting of three flaps and being termed tricuspid, that on the left being termed mitral and consisting only of two flaps. In order that the blood may circulate through the body it has to describe two circles. It has to pass through the body generally in a large circle, and this is called the

systemic circulation, while it further has to pass through the lungs, forming the pulmonary circulation. In the diagram the shaded portions will represent the flow of venous blood, and the dark portions show the flow of arterial blood. The two auricles of the heart contract and drive the blood into the still expanded ventricles. Thereupon the auricles relax and the ventricles contract, driving the blood through the aorta and the pulmonary arteries. This alternate contracting and expanding will evidently cause a constant flow of blood. The blood driven into the pulmonary artery passes through it into its two branches, one branch passing through each lung. Here the blood is oxygenated and purified, since it is passed through smaller and smaller branches, ulti-



mately directed into the pulmonary capillaries covering the air cells of the lungs. Here the carbon dioxide is given up and oxygen taken. These capillaries then reunite into four pulmonary veins which carry the blood to the left auricle. Purified as it now is, it is in a similar manner passed again into the left ventricle, and from thence into the aorta, which carries it in a great curve down behind the vertebral column. Branches are given off from this for the head, the neck, and arms at the curve, while on its downward course it throws branches to the thorax, abdomen and legs. From the various branches of the aorta the blood passes into the capillaries, and is again gathered up into the veins after it has parted with its oxygen to the tissues and gathered up the carbonic acid gas which represents the waste. These veins unite into two large trunks, the superior and inferior venæ cavae. The superior vena cava receives the blood from the head, neck, and arms, while the inferior vena cava receives the blood from the rest of the body. Through these the blood is poured back again into the right auricle, from whence

it repeats the above process, being reoxygenated each time on circulating through the pulmonary system before it begins its course through the general system. The blood of the abdominal viscera, however, takes a different course. It comes from the aorta, but from the capillaries of the stomach, intestines, and spleen, it is gathered into the portal vein. From here it passes into the liver, where again it is distributed into capillaries. At the same time blood travels direct from the aorta to the liver by means of the hepatic artery. It is through the portal vein that many of the products of digestion are carried to the liver, mingling with the blood from the hepatic artery, and the capillaries reunite to form small veins; these again join together to form the hepatic vein, which carries the blood back into the inferior vena cava. This course taken by the blood from the abdominal viscera, through the liver to the hepatic vein, involving a passage through the two sets of capillaries, is often referred to as the portal circulation (see LYMPH). The heart itself receives its supply of blood from what are termed coronary arteries which spring from the root of the aorta. This blood, after passing through the heart capillaries, is passed directly into the right auricle.

Comparative.—It is not until we come to the higher worms that we arrive at anything approaching a vascular system, the various types giving rise to manifold stages until the highest stage for them is reached in the possession of a dorsal heart. In crustaceans, arteries are fairly well developed through which the blood is driven from this dorsal heart. The venous system is lacunar, the venous blood passing along body cavity spaces to the gills and thence back to the heart. In insects the vascular system is not very distinctly developed. In molluscs the arterial system is fairly well developed. Passing to the vertebrates, the heart is a ventral and not a dorsal vessel. The typical fish circulation involves the fact that the heart always contains impure blood. The dorsal aorta, formed from efferent branchials which supply the head with blood, carries the blood to the body; thus showing the great difference between them and the higher vertebrates, in whom the dorsal aorta arises from the heart. In amphibians the heart has developed into a three-chambered organ. They have a right and left auricle and one ventricle; the ventricle drives the blood to the head, body, and lungs, while the right auricle takes impure blood from the body, and the left purified blood from

the lungs or gills. In all these stages pure and venous blood is more or less mixed, and it is only in birds and mammals that there is a complete separation of the two sides of the heart, resulting in the separation of the arterial and venous systems, so that they can only communicate through capillaries. In birds the aorta goes to the right, while in mammals it goes to the left, but except for the fact that their hearts are different in structure, and for the above fact, the circulatory systems are similar in birds and mammals. In this matter the metamorphosis of the frog affords a striking example of the evolution of the circulatory system. See Huxley, *Lessons in Elementary Physiology*; Michael Foster, *Text-Book of Physiology*; Foster and Langley, *Elementary Practical Physiology*; Willis, *William Harvey*.

Circumcision (Lat. a cutting round), the cutting off of the foreskin, is a rite of ant. origin and widespread use. It was practised among the early Egyptians, as is proved by extant monuments; and it is a primitive Arab custom. It was practised by the Aztecs, and at the present time by all Mohammedans, the Kaffirs, the Australian aborigines, the Papuans, and the Jews. The last-named people regard it, as they have always done, as a custom of great religious importance; and one of the earliest controversies of the Christian church was on the subject of its retention. The reason for the rite is not known, but it originated probably either as a sacrifice or as a distinctive tribal mark, like tattooing.

Circumcision, Feast of, a religious festival observed both by the Rom. Catholic and Anglican churches, celebrating the circumcision of Christ. It is commemorated on New Year's Day, January 1.

Circumference (Lat. *circum*, round, and *fero*, to carry), or periphery, is the name given to the curved line which encloses a plane geometrical figure, such as a circle, an ellipse, etc. The length of the C. varies according to the nature of the curve, and there are different formulae to ascertain it. The circumference of a circle, for example, is $2\pi r$ (r , radius; π , 3.1416).

Circumferentor, the name of a mathematical instrument used chiefly in connection with the surveying of mines, etc. It consists of a compass, with diametrical sights, and dial of which is divided into degrees. This is attached to a stand, and can be adjusted so that the angle which the line of sight makes with the magnetic north can be observed on the dial.

Circumlocution Office, the name

applied, in satire, by Charles Dickens to government offices on account of their delay in certain matters.

Circumnavigation means literally sailing around, but is usually applied to voyages round the world. Among famous circumnavigators may be mentioned Francis Drake (*q.v.*), Bougainville, one of the first Frenchmen to sail round the world (1766); and Captain Cook (1776-79).

Circumpolar Stars. See STARS.

Circumstantial Evidence. See EVIDENCE.

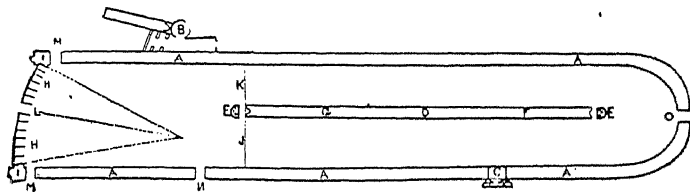
Circumvallation. In fortification, an entrenchment or chain of defensive works, erected by a besieging army, but facing outwards towards the country, so as to guard against attempts at relief by a field army, is called a line of C. The field-works are sometimes connected by a parapet or a rampart.

Circus (Lat. *circus*; Gk. *κίρκος* or *κρίκος*, a circle or ring), was anciently a space, circular, oval, or sometimes oblong in shape, which was intended for the performance of races and athletic contests. The Rom. C. was in the form of an ellipse cut in half at its vertical axis, whilst along the transverse axis the fence (*spina*) ran, which separated the starting course from the return course. The seats rose in tiers parallel to the sides of the course, and in a crescent round one end; there were no seats at the other end, which was the front of the building, and the main entrance, but the *carceres*, or stalls, for the horses and chariots were here. The seats were made of stone in the lower tiers, and in the others of wood. The lower seats were reserved for members of the upper classes, whilst there were a few *cubicula*, or state boxes, for the giver of the C. and his friends. The C. was the only public spectacle at Rome in which the sexes sat together. The *spina* was decorated with carving and statues, besides seven figures of dolphins and seven oblong objects, of which one was removed after every 'lap,' as a race consisted of seven rounds of the course. Colours were used to distinguish the various chariots and their drivers. At first only red (*russata*) and white (*albata*) were used, but later green (*prasina*) and blue (*veneta*) were introduced. Domitian introduced purple (*purpurens*) and gold (*amatus pannatus*), but afterwards their use was discontinued. Two-horse (*bigæ*) or four-horse (*quadrigæ*) chariots were generally used, though sometimes more than four, or three horse (*trigæ*), races took place. The drivers (*aurigæ*) were members of the slave class; the best horses came from Sicily, Spain, and Cappadocia. The chief C. at

Rome was the C. Maximus, built in 329 B.C., though races had previously been run on the site. The C. Flaminius, built in 221 B.C., the C. Caligula, afterwards known as the C. Neronis, and the C. built about A.D. 311 by Maxentius, were the remaining Cs. of Rome. Of these only the last-named has been preserved. The modern C., which dates from the eighteenth century, has not much in common with the ancient. It is often nomadic in character, and the performances are given in a tent, with a central arena. The *pièce de résistance* of the modern C. has been a display of equestrian skill. Jumping through hoops, riding two horses at the same time and such exhibitions, varied by the witticisms of the traditional clown, formed almost the sole attractions for a long time. Philip Astley popularised the C. in London at the end of the eighteenth century, followed by the noted horseman Andrew

fear man, and then they learn simple tricks by repetition, usually followed by reward. While amusing themselves in the training-den the animals are watched, and an animal's natural aptitude for any particular type of trick is soon discovered. In a modern C. not only horses and dogs but every kind of animal will perform—lions, tigers, seals, elephants, and monkeys. Transporting animals from their native country to captivity is an organised trade, but some animals, especially monkeys, have difficulty in becoming acclimatised. They travel backwards and forwards on tramp-steamers until they become used to change. In America, where the distances that the C. has to travel are great, the animals travel by rail in vans, but in England the C. travels along the roads at night, drawn by steam power; on the Continent Cs. are usually stationary.

The greatest modern development



CIRCUS (GROUND PLAN)

A, A, seats—B, Emperor's seat—C, seat of honour—D, Wall—E, E, goals (metal)—F, two columns called *ovaz* for scoring—G, ditto—H, H, stalls for horses and chariots—J, K, start and finish of course—L, M, N, O, entrances

Ducrow, Batty, Hongler, and Sanger. P. T. Barnum revolutionised the C. with his 'biggest show on earth,' in which he gave displays necessitating the use of intricate machinery and large companies. At the London Hippodrome, which was built as a C., menagerie, and variety theatre, various animals have appeared on the stage, and many realistic representations of natural scenes have been given. At the Paris Hippodrome, which resembles a Roman C. in having a central stage, chariot races were run after the Roman fashion at the end of the nineteenth century for prizes offered by the management. The modern C. is almost entirely a display of trained animals varied by acrobatic feats, but conditions are very different from what they were in the nineteenth century. The greatest advance is in the cessation of cruelty towards animals, especially since cruelty teaches the animal nothing and makes it unreliable. First the animals are taught not to

of the travelling C. has taken place in the U.S.A., where it has proved vastly profitable on account of the extent of the country and the considerable number of large towns which furnish the audiences. The start in this direction was made by the famous showman P. T. Barnum and by 'Buffalo Bill' Cody, who had a Wild West Show rather than a C. strictly speaking. Adam Forepaugh and the Sells Brothers were the next to come, followed finally by the Ringling Brothers, who eventually absorbed practically all their biggest rivals. Under the Ringling régime the C. is no longer a more or less Bohemian affair, but a vast business organisation with its advance agents to procure sites for the village of tents, properly to advertise in all the countryside and make provision for the large amount of food for the army of employees and fodder for the hundreds of horses and for the immense travelling menagerie. The Ringlings have their

own trains and make journeys of from 150 to 400 miles overnight by rail from town to town.

Cirencester, or **Cicester**, a parl. bor. in Gloucestershire, England, situated on the R. Churn, and connected with the Thames and Severn Canal. It is 16 m. S.E. of Gloucester, and 14 S.S.E. of Cheltenham. Agriculture is the chief industry, and the manufs. are unimportant. The Royal Agricultural College is here. Carpets and carriers' knives are made. It has a fine live-stock market. C. was founded by the early Britons, and became a Rom. station under the name of *Corinium*. Various Rom. remains have been discovered. Pop. 11,500.

Cire Perdue, the name given to an old method of producing bronze statues. The molten bronze was poured into a model made in wax which had been cased over, and as the bronze melted the wax it assumed the shape of the model.

Cirie, an Italian tn. in Piedmont, which lies about 12 m. from Turin. Pop. 8080.

Ciro, an Italian tn. in the prov. of Catanzaro. It lies N.W. of Cotrona and near the Ionian Sea. Pop. about 8370.

Cirque, a crater-like basin, semi-circular in shape, occurring at the head of a valley or in the side of a mountain. They are caused in hill-sides by a permeable soil overlaying a hard rock, and by the water dissolving this permeable soil and causing a collapse of the ground, leaving the formation above referred to. In glacial regions Cs. are said to be due to the wearing away of the land by the action of the ice.

Cirrhosis, a disease of some of the internal organs of the body, such as liver, lungs, and kidneys. It is due to continual inflammation, and consists in the hardening and shrinkage of the parts, making them horny.

Cirrhous, a botanical term applied to a tendril formed from the apex of a leaf, and the corresponding adjective is *cirrhose*.

Cirripedia (Lat. *cirrus*, curl, *pes*, foot), an order of Crustaceans which includes the barnacles and acorn-shells (*g.v.*). All the species are marine, and live in either a parasitic or a sessile state. Nearly all the species are hermaphrodite, but in some genera dwarf male forms known as *complemental males* are also to be found.

Cirrus, see **CLOUD**.

Cirta, formerly the cap. of Numidia. It is now called Constantine, having been restored by the Emperor Constantine the Great.

Cis (Lat., on this side), used in

compound words, as in *Cisalpine*, meaning 'on this side of the Alps.' It was originally so used by the Romans, and so meant 'on this side' with regard to Rome. Thus *Cisalpine* meant on the S. side of the Alps.

Cisalpine Republic was formed in 1797 by the joining of the *Cispadane* and *Transpadane* republics formed the year before by Bonaparte. The whole republic consisted of Mantua, Brescia, Lombardy, Cremona, Verona, Rovigo, Modena, Massa, Carrara, Romana, Ferrara, and Bologna. The headquarters of the government was Milan, and its army consisted of French soldiers. It was eventually known as the Italian republic, and a little later Napoleon received the title of King of Italy.

Cisneros, Francis Ximenez de (1437-1517), a Spanish cardinal. After a period spent at the University of Salamanca, he went to Rome, where for six years he was imprisoned in a dungeon by the Archbishop of Toledo, whose jealousy had been aroused by the favour shown by Sixtus IV. to the young man. In 1495, at the special desire of the pope, he became Archbishop of Toledo, but retained all the monastic severity of the Franciscans. He founded the University of Alcalá de Henares, making special provisions for poor students. In 1506 he was appointed regent of Spain during the absence of Ferdinand, and in 1516 he again acted as regent during the minority of Charles I. C. ruled with great firmness, and in a time of great difficulty kept all parties in check. He added Oran in Africa to the Spanish dominions (1508). He was made a cardinal in 1508. Consult *De Rebus gestis a Francisco Ximénio*, by Gometius (Gomez de Castro).

Cissampelos, a genus of Menispermaceæ. *C. Pareira*, the *Pareira-brava*, is a native of several W. Indian islands, and of Brazil. The root is employed in Europe as a tonic diuretic, and the juice of the fresh plant in its native country is said to be an efficacious application to the bites of serpents.

Cissoid (Gk. *κισσός*, ivy), a cuspidal curve invented by Diocles, the mathematician of Alexandria. He came across it in his investigation of the problems of the trisection of a plane angle and the finding of two mean proportionals between two straight lines. One method of describing the curve is as follows: In a circle draw any diameter. Then erect two perpendiculars on this diameter at equal distances from the centre and on the same side of the diameter. Let one of these cut the circumference in a point C, and let A be the extremity of the diameter on the same side of

the centre. Join CA and let it cut the other (produced) perpendicular in P, then the locus of P is the cissoid curve. The tangent to the circle at the other end of the diameter is the asymptote to the curve which consists of two similar portions on either side of the diameter with a cusp at A.

Cistaceæ, an order of dicotyledonous plants, contains trees, shrubs, and herbs bearing beautiful flowers. There is considerable diversity among the various species: the flowers are usually regular and hermaphrodite, there are five sepals, the corolla may be absent or consist of three or five petals, the stamens are numerous, the carpels are three to ten in number, and unite to form a unilocular ovary usually containing numerous ovules.

Cistelidæ, a family of coleopterous insects nearly related to the Tenebrionidæ, differs from it chiefly in that the species have the claws of the tarsi comb-like. Little is known about these beetles.

Cistercians, the name given to the members of a monastic order, which was founded by Robert of Champagne, a Benedictine abbot. After many attempts he established, with twenty companions, in the forest of Cîteaux (Cistercium), near Dijon, a monastery for the purpose of carrying out the strictest observances of the rule of St. Benedict. After a time the order was blessed with the Pope's favour and confirmation, and the *Instituta Monachorum Cisterciensium* was drawn up, declaring the new foundation to be the home of the only true Benedictinism. The order was, however, in a very languishing condition when the famous St. Bernard joined it in 1113; two years later he became the first abbot of Clairvaux, which was henceforward the centre of the movement. The C. were known in France about this time as Bernardines. Their influence spread rapidly during the twelfth century; before the end of that period they possessed 800 abbeys, and by the middle of the thirteenth century they had about 2000. Their first English establishment was Waverley Abbey (1128), near Farnham in Surrey. When the monasteries were suppressed by Henry VIII., the order had seventy-five abbeys and twenty-six nunneries in England, and eleven abbeys and seven nunneries in Scotland. Of the English abbeys may be mentioned Woburn, Tintern, and Kirkstall; of the Scottish, Melrose, Dundrennan, New, and Deer. The last remnants of the order were expelled in 1880, though at Mt. St. Bernard, near Coalville, Leicestershire, there is a 'mitred' abbey built by Pugin the Elder. The most note-

worthy French abbey, besides Clairvaux, was Pontigny, which had 700 benefices in its gift. The C. owed their downfall to their increased worldly prosperity; they could not serve God and Mammon, and consequently as their riches grew, their austerity of life dwindled, and many of the more earnest members left them and founded new orders, such as the Fouillants and the Trappists. They were principally interested in agriculture and Gothic architecture. Their dress was a white robe with a black scapulary. See MAURIQUEZ, *Annales Cistercienses*, 1642; *Cistercian Saints of England*, by Newman, 1844; Sharpe's *Architecture of Cistercians*, 1874.

Cistern, see WATER.

Cisternino, an Italian tn. in the prov. of Bari. Pop. 9000.

Cists (Gk. *κίστη*, Lat. *cista*, a box or chest) belong to the early ages of man, and were enclosures formed of stones, the latter being placed on end and another slab of stone being used as a cover. These Cs. were found in 'barrows' or mounds of earth which were placed on the spots where burials had taken place, and one barrow sometimes contained more than one C. A C. was also a small receptacle carried at the Greek mysteries.

Cistus, a genus of Cistaceæ, contains several very beautiful plants bearing large red or white flowers. The species are indigenous to the Mediterranean, but are cultivated in Britain as ornamental shrubs.

Citadel, a strong fortress situated in or near a city, to keep the inhabitants of the city in due order and submission, and also to form a rallying-point and last place of defence when the town is attacked.

Citation, a process in the commencement of a suit by which the parties are commanded to appear before the consistorial courts (see under ECCLESIASTICAL COURTS). In the old prerogative courts it was called a decree. In a wider sense C. denotes the act of summoning a person to appear before any judge. C. was formerly the method of commencing all probate proceedings requiring the aid of the court, whether arising out of common form business or otherwise; its object was to compel a representation to be taken by those who were primarily entitled to it, or to provide a substitute for a voluntary renunciation on their part. The word C. is also used to denote the citing of reports and authorities in a court of law to establish any proposition submitted to the court.

Cîteaux, a French hamlet in Côte-d'Or, N.E. of Beaune. The remains

of its abbey still exist, and the Cistercian order of monks was founded here in 1098.

Cithæron (Gk. Κιθαράων), a range of mountains in Attica, separating Megaris and Bœotia. Its highest point is Mount Elatia.

Cithara, or **Cithern** (Lat. *cithara*, Gk. κιθάρα), an old instrument which resembles a guitar. It is strung with wire, and its eight strings are tuned to certain notes.

Citharinus, a fresh-water fish of tropical Africa. *C. Geoffroyi*, the moon-fish of the Nile, is a well-known species about 3 ft. in length.

Citium, a tn. in the island of Cyprus. It lies near the S. coast of the island, about 23 m. from Nicosia. *C.* was its ancient name, but the modern name is Larnaka, or Larnaca. It is important as a place of commerce, being the chief commercial town in the island, and also the residence of merchants from various parts of Europe. Pop. about 7900.

Citizen, see **Crry**.

Citric Acid ($C_6H_8O_7$), a constituent of the juice of many fruits. It occurs in large quantities in lemons, in smaller quantities in unripe gooseberries, raspberries, etc. It is usually prepared from lemon juice, which is boiled and then treated with calcium carbonate. The resulting calcium citrate is decomposed with dilute sulphuric acid, and the *C. A.* filtered off, after which the filtrate is evaporated to crystallisation. *C. A.* is a crystalline solid melting at $100^\circ C.$, soluble in water and alcohol. It has the property of preventing the precipitation of certain metallic hydroxides from solutions of their salts, and is used for this purpose in calico-printing.

Citron, or *Citrus medica*, an Asiatic species of Rutaceæ cultivated on account of its acid fruit. It is closely allied to the lemon, which it greatly resembles, but it is larger and has a thicker and fragrant rind which is used in the preparation of perfumes and confectionery.

Citronella, the name of a fragrant ethereal oil obtained from the grass *Andropogon Nardus*, which is cultivated in Ceylon and grows wild in Africa, Australia, and tropical Asia.

Citronwood, the name applied to several kinds of wood used in furniture-making, is most properly applied to that of *Thuja orientalis*, a coniferous tree often spoken of as the *Arbor vitæ* of China.

Citrus, a genus of about thirty aromatic evergreen shrubs and trees. *C. aurantium* is the sweet orange, *C. decumana* the shaddock, *C. limonum* the lemon, *C. medica* the citron, while

the lime, sweet lime, Bergamot and Seville oranges are well-known varieties of *C. limonum* and *C. aurantium*.

Cittadella, a tn. situated in the N. of Italy on the Brentella, and in the prov. of Padua. A mediæval town surrounded by superb walls. Pop. 12,420.

Citta della Pieve, a tn. of Italy, situated in the prov. of Umbria. Perugino was born here. Pop. about 8930.

Citta di Castello, an Italian tn. in the prov. of Umbria, Central Italy. It is situated on the Tiber, N.W. of Perugia, and possesses an old cathedral and several palaces, as well as some beautiful old pictures. Pop. of tn., about 7,000, of commune, 27,000.

Cittanova, an Italian tn. in the prov. of Reggio di Calabria, and is situated near the town of Palmi. Pop. about 11,700.

Citta Sant' Angelo, an Italian tn. in the prov. of Teramo, and lies N.E. of Penne and near the Adriatic Sea. Pop. about 3000.

Citta Vecchia, see **MALTA**.

City (through Fr. *cité*, from Lat. *civitas*), a borough or town incorporate, which is or has been an episcopal see. There are so many exceptions, however, to this definition, that the term is often used indiscriminately of any large industrial centre. The Romans used the word *civitas* to denote the whole state or body politic, *urbs* and *municipium* being applied to towns. This meaning of the word has been totally lost in modern times, but the large cities of the United Kingdom and the U.S.A. do somewhat resemble the cities of ant. Greece in their local self-government. The Gk. πόλις represented a collection of families, gathered together within a certain space, who administered their own foreign and domestic affairs, and had their own religion. These cities were only bound by ties of affection to the μητρόπολις, of which they were, in a sense, colonies. The indeterminate use of the word *C.* probably began at a very early date. Du Cange in his glossary of mediæval Latin words defines the word *civitas* as *urbs episcopalis*, and says that towns were called *oppida* or *castra*. The modern definition, given above, is derived from his glossary, yet there were exceptions to this rule at an early period. For example, Dorchester and Sherborne were once episcopal sees, but have never been called cities, not even now that they have corporations. In the Domesday Book Gloucester and Leicester are called both *civitas* and *burgum*. The word is now used chiefly as an honorary title, as it is thought to confer more dignity than

the word *town*. In 1889, Birmingham, though not an episcopal see, was raised to the rank of a C. on account of its industrial importance; since that time the title has been conferred on many other towns incorporate in the United Kingdom, and it is the common ambition of growing towns to be so called. In the U.S.A., C. is applied to any incorporated town which possesses the highest municipal privileges and a sufficiently large population. Ten thousand inhabitants is often sufficient to procure the title. Such a C. can administer its own local affairs according to the provisions set out in its charter. In certain cases, where the population has grown very considerably and the town has spread into numerous suburbs, the term C. is applied to the space within the original boundaries, as, for example, the Cité of Paris. Thus, curiously enough, London, which is called the 'largest C. in the world,' has within it two Cs., the C. of London and the C. of Westminster. A citizen, as defined by Aristotle (*Politics*, III. i.), is one who has the right to take part in the legislative proceedings of the state to which he belongs. He is a subject with particular privileges. In auct. Rome there were two kinds of *cives*. The majority had certain private rights of citizenship, such as the right of intermarriage (*jus connubii*) and right of trade intercourse (*jus commercii*) with the allies or friends of Rome. A few, however, had special privileges, of voting in the tribe, and were eligible for the higher offices of state. The rights of citizenship were generally acquired by birth, but both parents had to be Rom. citizens. At a later period, it merely denoted free birth as opposed to those who were born slaves. The word *citoyen* was particularly popular during the Fr. Revolution, as it was felt to express all that *liberté, égalité, et fraternité* comprised. It was used as the common title of address, irrespective of the person's position. The term, however, fell into disuse when the Gov. came into the hands of Napoleon. In Great Britain it has never been used to any great extent, and its meaning is indefinite.

In the U.S.A. a city may be defined as an incorporated municipality, governed like an Eng. borough by a mayor, aldermen, and common council. For all practical purposes the term is synonymous with 'municipal corporation.' Cs. existed in Virginia from the commencement of American history, though it is not clear that these 'cities' were chartered, or that the title they assumed was anything

more than vainglory. Records show that in 1619, when the first American representative assembly was convened, that body consisted of burgesses from James City (Jamestown), Charles City (Charlestown), and other towns or hundreds, styled boroughs. The borough of Agamonticus (now York) in Maine was the first town to become a municipal corporation. It was settled in 1624, and received its charter in 1641 from Sir Fernando Georges. In 1653 Governor Stuyvesant created a burgher government in New York after the pattern of the Dutch free cities, and when the town passed into the control of the British, Governor Nicholls confirmed its form of government (1665), with changes conformable to the local gov. of an Eng. borough. After many changes, Governor Dongan in 1683 granted to the Mayor and aldermen what has since been known as the Dongan Charter, wherein New York is referred to as an 'antient city.' Albany was incorporated by two charters, one in 1686 by Dongan and another, a confirmatory document, in 1730 in the name of George II. (the Montgomery Charter). Despite many statutory changes in wording, these charters remained in much their original form throughout the colonial period, and to-day the ferry privileges of New York are still based on the Dongan Charter. The next towns to receive charters or statutory incorporation were Westchester, Hudson, New Brunswick, Burlington, Trenton, Schenectady, Philadelphia, Germantown, and later, Harrisburg and Pittsburgh. Charters were by no means universally popular, as is exemplified in the chequered history of Philadelphia's incorporation, the inhabitants of which city were convinced that corporate privileges were contrary to the spirit of public liberty. In 1789, however, after all prior charters had been dissolved by the Declaration of Independence, the legislature passed an Act which incorporated Philadelphia for all time. Numerous other towns were incorporated towards the close of the eighteenth century, but in New England it seems that except in Connecticut and Rhode Island no new Cs. were created before 1800. The absence of system in the creation of Cs. arose from the fact that during the colonial period charters were sometimes granted by the Eng. parliament, sometimes by the crown, or by the royal governors, and sometimes, in defiance of the principles of Eng. law that incorporation could only be by royal grant or statute, by the colonists themselves. When the

colonial period terminated, and the states had established their independence, the power to create municipal corporations became vested solely in the legislative bodies. But in the newer western constitutions any city or town of to-day may form its own charter, and thereby make its own laws and create its own frame of government—an innovation which is considered by some to be futile, because made without regard to habit or custom.

In connection with former grants of charters it is interesting to recall that a charter was granted by Lord Baltimore to St. Mary's early in the history of the colonisation of Maryland, but the place ceased to be a C. before 1700 and is now called the Lost City of Maryland (Scharf's *Hist. of Maryland*). A 'free city' is one enjoying its own government and laws independently of the country or state within which it is situate. As such the term is now a mere synonym for 'municipal corporation.' It is to be observed that the term 'freedom of the city' has no place in American law, and indicates nothing beyond the conferring an honour on distinguished individuals. (See *Two Centuries' Growth of American Law, 1701-1901*.) The charter, as amended or supplemented by subsequent state enactments, remains at the present day the foundation of C. or municipal government. The general scheme of C. gov. in America is by no means uniform, though in nearly eighty large Cs. municipal administration is delegated to a commission of five, of whom the mayor is the head, these five being elected by the citizens on a 'general ticket,' as in the case of the presidential elections. The mayor of an American C. is elected by the C. voters, generally for two, but sometimes for three or even four years, as in New York. He enjoys far greater powers, especially in a legislative capacity, than his Eng. prototype; for besides often possessing a wide discretionary power in the enforcement of law and order, he has a veto on all council ordinances. Many mayors are in receipt of large salaries. Besides the mayor, there are frequently both an administrative board consisting partly of elected members and partly of nominees of the council or of the mayor, a single-chamber or bicameral assembly or council. The chief duties of the council are to vote supplies and pass local ordinances, the mayor being invested with all the chief executive or legislative functions in local government. The administrative work of Cs. is in most cases done by a number of different boards appointed ex-

pressly for the purpose. A more recent development in American cities is the election by the Council or City Commissioners of a City Manager. The conviction has arisen in some municipalities that running the affairs of the city is just as much of a business as running a big factory or corporation. Hence the institution of the City Manager, who is charged with the duty of superintending all the activities of the town. See Bryce's *American Commonwealth*.

Citizenship in U.S.A.—By the 14th Amendment to the U.S.A. Constitution all persons born or naturalised in the U.S.A. and subject to the jurisdiction of that country are citizens of the U.S.A. and also of the state wherein they reside. Indians who are not taxed, are not citizens. As in England, children born abroad are U.S.A. citizens if at the time of their birth their fathers were U.S.A. citizens. The issue of alien parents are U.S.A. citizens if born in the U.S.A., but they may make an election of their nationality on reaching majority. By an Act of Congress, approved Sept. 22, 1922, it is provided that after that date citizenship status of a married woman shall no longer follow that of the husband and that thereafter a married woman shall have the privilege of becoming naturalised on her own account. The net effect of this is that an alien woman, married to an American citizen after the passage of this act, does not *per se* have the status of an American citizen. She can only acquire it by becoming naturalised. Children of Chinese parents born in the U.S.A. are citizens irrespective of the capacity of their parents becoming naturalised—indeed the U.S.A. courts have decided that neither Chinese, nor Japanese can be naturalised. But the following are not citizens: children born of aliens on board foreign vessels or of persons in the diplomatic service of a foreign gov. The naturalisation laws are applicable to both sexes. Any U.S.A. citizen who has been naturalised in a foreign state ceases to be a citizen of the U.S.A. Exclusive jurisdiction to naturalise aliens resident in their districts is vested in the U.S.A. circuit and district courts, and in all courts of record having unlimited jurisdiction in actions of law or equity or both.

City of Refuge. These cities were six in number (Num. xxxv.), three to the E. and three to the W. of Jordan, and were set apart to protect people who had committed murder unintentionally.

Ciudad Bolívar, a tn. of Venezuela and cap. of the State of Bolívar. It stands on the r. b. of the Orinoco and

is the principal port of its basin. Steamers run to Trinidad and along the Venezuelan coast, and in the rainy season far up the river. It was founded in 1764 as Angostura (the Narrows), but renamed C. B. in 1849. It suffered severely in the War of Independence when for a time it was Bolivar's headquarters. It is the seat of a bishop. It exports hides, rubber, coffee, cocoa, tobacco and cattle. The trade is mostly in Ger. hands. The mean temp. is 83°, but the climate is healthy. Pop. 20,000.

Ciudad Porfirio Diaz, a tn. in the prov. of Coahuila, Mexico. It is situated on the Rio Grande and on the Mexican International Railway. It was originally known as Piedras Negras. Pop. about 5000.

Ciudad Real (Royal City), the cap. of the prov. of the same name, and an episcopal see, is situated 61 m. S. of Toledo and 105 m. S. of Madrid, between the Rivs. Guadiana and Jabalon. There are the remains of the town walls, with a fine gateway, a beautiful Gothic church, and a hospital. Manufactures of woollen and linen goods are carried on. Pop. 20,000.

Ciudad Rodrigo, a fort. tn., Spain, in the prov. of Salamanca. In 1706 it was taken by the Eng., and again in 1812 by Wellington, who was created Duke of C. R. There are manufactures of leather and soap. Pop. 10,000.

Cividale, an Italian tn. in the prov. of Udine, about 9 m. from the city of Udine. The tn. is noteworthy for its fifteenth-century bridge over the Natisone and for the anct. baptistery of its cathedral. The chief manufactures are linen and cotton goods. Pop. about 4620.

Civil Engineers, American Society of. An association of professional engineers of all branches, founded in 1852, for the advancement of engineering and architectural knowledge and practice, and for the maintenance of high professional standards. It holds an annual convention in the summer, at which there are technical discussions on the various papers submitted by its special committees and at which excursions to places of professional interest are arranged. Among the more important questions considered in recent years by the society have been the preservation and utilisation of Niagara Falls, the regulation of the flow of the Great Lakes, the engineering aspects of civil aerial transport, and the engineering features of the national capital. It now comprises about fifty local sections and nearly a hundred affiliated student chapters in colleges throughout the U.S.A.,

the total membership being upwards of 13,000. The papers presented at meetings and the discussions are published in the society's monthly *Proceedings*; while other publications of the society are *Transactions* (annual) and a *Year Book*. Headquarters are at Engineering Society's Building, 33 West 39th Street, New York.

Civil Engineers, Institution of, granted a charter in 1828, in which civil engineering is described as the art of directing the great sources of power in nature for the use and convenience of man as the means of production and traffic in states, both for external and internal trade, as applied (i) in the construction of roads, bridges, aqueducts, canals, river navigation, and docks for internal intercourse and exchange, (ii) in the construction of ports, harbours, moles, breakwaters, and lighthouses, (iii) in the art of navigation by artificial power for the purpose of commerce, (iv) in the construction and adaptation of machinery, and (v) in the drainage of cities and towns.

Civil Estimates, the expenditure of the various departments of State, excluding that of the three fighting services. The C. E. at the present time (1929-30) show an annual expenditure of about £300,000,000, in which the Civil Service accounts for about £220,000,000 to £240,000,000, the Customs and Excise £5,000,000, Inland Revenue £5,250,000 to nearly £7,000,000, and the Post Office for about £60,000,000. The C. E. are divided into ten classes: (1) Central Gov. and Finance about £2,000,000, the chief items being the various Gov. departments (over £800,000), salaries of members of the House of Commons (about £350,000), registration of voters (£250,000), secret service (£180,000), and the Scottish Office (£280,000); (2) Imperial and Foreign £5,000,000; Foreign Office (£200,000), diplomatic and consular (£1,000,000), Oversea Settlement (£1,300,000), Colonial Office and Middle East Services (£1,000,000); (3) Home Department, Law and Justice, £12,500,000; Police, £8,000,000 (including Scotland), Land Purchase Commission (£2,000,000), prisons (£1,000,000), reformatories (£280,000), and Home Office (£430,000); (4) Education (about £50,000,000), including Scotland about £6,000,000; (5) Health, Labour and Insurance £80,000,000, of which Old Age Pensions accounts for over £30,000,000, the Ministry of Health, £20,000,000, the Ministry of Labour, over £10,000,000, Widows', Orphans' and Old Age Contributory Pensions £4,000,000, the Board of Control,

£800,000, and the Scottish Board of Health for £3,000,000; (6) Trade and Industry about £9,000,000, of which the beet-sugar subsidy (in 1929-30) accounted for £3,000,000, and the Ministry of Agriculture for a similar amount, the Forestry Commission, mercantile marine, scientific and industrial research and the Scottish Board of Agriculture for over £400,000 each, and the Department of Overseas Trade and the Development Fund for over £300,000 each; (7) Common Services, comprising works and stationery, over £8,000,000; (8) Pensions about £56,000,000, of which the Ministry of Pensions accounts for over £54,000,000 in respect of pensions for war-disabled men, merchant seamen's war pensions about £400,000, and Royal Irish Constabulary pensions for £700,000 (all of which pensions are, of course, an annually diminishing burden on the Estimates); (9) Miscellaneous, over £700,000 for Australian zinc concentrates in 1930, and (10) Grants, a very varying amount, being only £1,000,000 in 1928-29, chiefly for railway freight rebates, and over £15,000,000 in 1929-30, owing to the derating measure, which cost the Exchequer over £12,000,000.

Civilisation, see ANTHROPOLOGY.

Civil Law. This is generally understood to mean the municipal law of the Rom. empire, as comprised in Justinian's Institutes, Digest or Pandects, Codes, *Novellæ* (supplementary to the Institutes), containing new constitutions by himself and some of his successors. These form the *corpus juris civilis*. As applied to modern systems, C. L. means the municipal law of those countries that have founded their system upon the Rom. law. Scots law is founded upon the C. L., as is the Code Napoléon. The N. states of the U.S.A. administer a system founded on common law, whereas in Louisiana a C. L. system is in vogue. Many of the principles of the canon law as administered by the ecclesiastical courts (*q.v.*) are borrowed from the Rom. law. The common law (*q.v.*) of England is generally assumed to be indigenous, but the Eng. law merchant which is now incorporated in the common law owes much of its uniformity to analogies drawn by such judges as Lord Mansfield from, among other sources, the Rom. Pandects.

Civil List. In former times the whole expenses of the Gov., except that of the army, navy, and military departments in general, were paid from the possessions of the Crown. In the reign of William III. the

Commons separated the regular and domestic expenses of the king from the public expenditure, and took control of the latter. From 1697 until the reign of George II. the C. L. was fixed at £700,000, in the reign of George II. at £830,000, and at £800,000 in the time of George III.; these amounts were often supplemented by additional grants. All salaries were taken out of the C. L. at the time of William IV.'s accession, and the amount was fixed at £510,000. On the accession of Queen Victoria the amount was £385,000, to be devoted solely to the support of the household of Her Majesty and the maintenance of the dignity of the Crown. The C. L. for the present reign is £170,000 per annum. As the Prince of Wales is entitled to the revenues of the Duchy of Cornwall, no further provision is made for him; but on his marriage £10,000 a year is assigned to the Princess of Wales, to be increased to £30,000 a year should she survive the Prince.

Civil Research Committee, see ECONOMIC ADVISORY COUNCIL.

Civil Service. All officers of the Crown who are engaged in the administration of the civil affairs of the state belong to the C. S.; the military, naval and air services are excluded. The service is divided into various departments, such as the Home Office, Foreign Office, the Treasury, the Ministry of Health, the Board of Education, the Scottish Office, etc. The Cabinet has the ultimate control of these departments in so far as any control is exercised over them; they are generally left to run themselves. In former times appointments to the C. S. in Great Britain were in the gift of the executive gov., and were obtained by influence. No qualifying examination was held, unless there were more nominations than there were posts vacant. When an appointment was made it was, as a rule, permanent. This system led, as may be imagined, to extraordinary inefficiency and favouritism; but it was not until 1870 that the system of open competition was introduced. Most of the posts in the service are now filled in this manner. A few posts which require special qualifications are filled by nomination without examination, or with only a qualifying examination. There are four main classes of offices in the C. S.: (1) Administrative; (2) Executive; (3) Clerical; and (4) Writing Assistants. Admission to all of these is by examination, but in the first two classes a special board makes a selection for appointments from the candidates who pass. In the first class the candidate must be over 22; in

the second over 19; in the third between 16½ and 17½; and in the fourth between 16 and 17. The rates of payment vary in the different classes and rise annually by about 10% till the maximum is reached. The rates of payment are those which were in use during 1914 plus a bonus governed by a sliding scale, which is regulated by the standard cost of living. In 1920 this was assumed to be 130% (at one time the figure reached 176%) higher than in 1914. Additions and deductions made since that time affect one twenty-sixth part of the bonus for every 5% of rise or fall in the basic rate. The 1914 commencing salaries varied from £400 per annum in the higher branch of the Administrative Class to 18s. per week in the lowest class, and these rates, plus bonus, still remain. The bonus rate diminishes as the salary becomes higher until in the case of persons in receipt of £2000 a year it ceases to operate. Broadly, in most classes the full 130% index figure is taken on the first £91 5s. (1914 figure), 64% on the next £108 10s. and 45% on the remainder up to £500. The general administration of the C. S. is under a special department of the Treasury, which, however, usually acts with the department affected. The superannuation allowances of the C. S. bear a relation to the number of years of service. Service may conclude at any time through ill health, or voluntarily at sixty and compulsorily at sixty-five. In 1929 a Royal Commission was appointed to deal with new problems that had arisen in connection with the different rates of pay, and superannuation allowances between men and women and also between recognised employees and those who, though temporary workers, continued in the service till compulsorily retired at sixty-five. In the case of many receiving about £3 5s., who received no pension but a small gratuity, it was felt there was much hardship. The Sex Disqualification Act of 1919, which placed women on an equality with men in many privileges and liabilities, contained a special clause under which the position of women in the C. S. was still left somewhat indefinite; but in 1921 a resolution was accepted by the Gov. which placed women on equal terms with men. Most branches of the C. S. have their own associations, which in many cases are recognised when questions of difficulty and dispute arise. The Industrial Courts Act of 1919 established a court to deal with claims affecting emoluments, hours of work and leave, but these matters

are here treated on broad issues and are not for hearing specific cases. The C. S. of the U.S.A. differs in many respects from the British. The appointment of all federal officers is in the hands of the President, and also the removal. In the earlier years removals were mainly ordered on the ground of incompetency, but in 1829 the system of patronage was adopted. In that year President Jackson adopted the motto 'To the victors belong the spoils,' and in pursuance of that policy dismissed for political reasons large numbers of state officials. The system thus inaugurated naturally conducted to the inefficiency of the service and the lowering of the public standard of morals. This was widely recognised, and public feeling in favour of reform grew very strong. An Act of Congress which was passed in 1883 authorised the President to appoint C. S. commissioners; under their direction nearly 15,000 offices, mostly of a minor character, were filled by competitive examinations. By subsequent legislation the President has been given power to add to the number of offices which are thus filled, and President Cleveland availed himself largely of this power. At the present time more than half of the offices in the U.S.A. are filled by open competition, and so successful has it proved that there is no doubt that the 'classified service' will be extended. At the conclusion of the Great War an important change was made in procedure, by which preference for all C. S. appointments throughout the U.S.A. was given to ex-service men.

India. Entry is by examination in England or in India. The annual examination in London is held in July and Aug., and is open only to candidates who are over 21 and under 24 on Aug. 1. The entrance fee is £8. Successful candidates spend one or two years in England on probation, and if this is spent at a University or an approved college £300 is allowed as a gratuity. The commencing salary in India is 7000 Rs. per annum.

Civil Service Reform League. National, an American organisation founded in 1881, arising from the old Civil Service Reform Association of 1877. The main object of the League is to secure promotions on the score of efficiency and meritorious service, instead of by the 'spoils system' whereby appointments to administrative posts were made of men who did not possess necessary Civil Service qualifications. The League also objected to the placing of men in confidential posts in the Depart-

ment of Justice without preliminary examination, and to the preference shown to disabled ex-service men over civilians without regard to individual ability. The official organ of the League is *Good Government*, and the headquarters are at 521 Fifth Avenue, New York.

Civil War, American, see UNITED STATES—*History*.

Civita (from Lat. *civitas*), an Italian word meaning city. It is the same as the Spanish *ciudad*, and forms part of several names of places in Italy, such as Civita Vecchia, etc.

Civita Castellano, a tn. of Italy in the prov. of Rome, 19 m. S.E. of Viterbo. It is a most picturesque town, situated high on a rock, with an old citadel (1500) and a thirteenth-century cathedral. Near by are the famous Etruscan ruins of the anct. city of Falerii, which comprise a theatre, gateways, and towers, and some excellent specimens of anct. military architecture. Pop. 3200.

Civitan International, an altruistic American organisation composed of men of standing in the business and professional worlds banded together to further the interests of their fellow-citizens and countrymen in general. The first Civitan Club was founded in Birmingham, Alabama, in 1917, and the movement rapidly spread in other states. Health work, town-planning, child welfare and education are included in the Civitan interests. The monthly official organ is *The Civitan*; the word 'Civitan' meaning simply 'citizen.' The headquarters of the association are 1007 Jackson Building, Birmingham, Alabama.

Civitanova, a commune of Italy, prov. Macerata, pop. 6625. Its port called Porto di C. on the Adriatic is now an independent commune, pop. 7230.

Civita Vecchia, a fort. seaport of Italy, situated on the Mediterranean, 50 m. N.W. of Rome by rail. The port, which is one of the best in the country, was built by Trajan. The city is on the site of Centum Cellæ, and has been besieged, destroyed, and taken several times. It is the tenth among Italian ports. There are steamers daily to Sardinia. 148,644 travellers and 942,379 tons of goods passed through it in 1927. There is an important arsenal. Pop. 23,100.

Civitella del Tronto, a tn. of Italy in Abruzzi e Molise in the prov. of and 10 m. from the tn. of Teramo. It is situated on a high rock, which is capped by a castle. Pop. (commune) 9300.

Civitella di Romagna, a mrkt. tn. of Italy in Emilia, in the prov. of Forlì. Pop. 7260.

Civray, a tn., Vienne, France, on R. Charente, 30 m. S. of Poitiers. The anct. Severiacum. Pop. 2280.

Clackmannan, the cap. of the county of that name, situated on the Devon, 2 m. from Alloa. There is an anct. market cross, and in the near vicinity is a ruined tower of the Bruces. Pop. 1489.

Clackmannanshire, the smallest county in Scotland: bordered on the S.W. by the Forth, it lies between Perth, Fife, and Stirling. It is 10 m. long and 4 m. wide, with an area of 34,927 acres. The surface is varied. To the N. are the Ochill Hills, and the remainder of the country is somewhat level and extremely fertile. The Black Devon and Devon are the principal streams, the latter being noted for its beautiful scenery. The soil is well cultivated; oats, wheat, and beans are the chief crops. Cattle and sheep are reared in great numbers. Much coal and iron abound, and small quantities of copper, lead, and silver are found. Coal has been worked for nearly two centuries, and there are large iron works, breweries, and distilleries. The chief towns are Alloa, Clackmannan, Tillicoultry, and Alva. Woollen goods are manufactured at Tillicoultry, and in other parts glass-blowing, tanning, and shipbuilding are carried on. Pop. 33,000.

Clacton-on-Sea, a seaside tn. in Essex with a beach several miles long, and a pier 1150 ft. in length at which steamers call daily during the summer. There is a promenade nearly 1½ m. in length and a marine parade along the cliffs, an annual regatta and wild-fowl shooting in the marshes, a recreation ground with a Japanese rock garden, a hospital and six convalescent homes, an orphanage and a holiday home for blind and crippled girls. The pop. of the parish of Great Clacton is 7051.

Cladium, a genus of Cyperaceæ, consists of tropical and temperate plants which are extremely common in Australia. There is only one British species, the common sedge.

Cladocera, or **Water-fleas**, form a sub-order of branchiopod crustaceans characterised by having not more than six pairs of trunk-legs.

Cladonia, a genus of fruticose lichens, has several British species. The shape of its branches gives it the appearance of a bundle of small worms or of vermicelli. *C. rangiferina*, the reindeer moss, occurs frequently on moors, heaths, and mountains. In Lapland it is the most abundant of all plants, and is found chiefly in pine-forests, covering the soil for miles together; it forms the principal support of the reindeer.

Claim of Right, The : (1) An Act passed by the Scottish Estates in April 1689, stating the offences for which James VII. had forfeited the crown, and the terms on which it was accordingly offered to William of Orange. It enacted that in future no papist should rule over Scotland, and declared the necessity of frequent parliaments. (2) A petition made by a majority of the Scottish General Assembly in 1842 against patronage and sent to the parliament of Westminster. It stated their feelings with regard to the relation of the State to the Church. The terms of the petition were not granted by the Gov., and, accordingly, in the following year, 400 ministers seceded and formed the Free Church of Scotland.

Clairac, a tn., France, in the dept. Lot-et-Garonne, situated on the r. b. of the R. Lot, 18 m. N.W. of Agen. It was the first town in S. France to declare in favour of the Reformation through the example of the abbot of the Benedictine Abbey, who turned to Protestantism in 1527. White wines are manufactured. Pop. 2300.

Clairaut, Alexis Claude (1713-65), a Fr. mathematician. He produced at the early age of twelve a treatise on four curves of the second order; this, together with his *Recherches sur les Courbes à double courbure* (1731), caused him to be elected a member of the Academy when eighteen. His *Théorie de la Lune*, which gained the prize at St. Petersburg Academy, explains the lunar apogee, which had been omitted by Newton. His *Théorie de la Figure de la Terre* (1743) expounds the theorem that the variation of gravity on the surface of the earth, regarded as an elliptic spheroid, is altogether independent of the law of density. He also calculated the perihelion of Halley's comet.

Clairon, Claire Josephe Lérés (1725-1803), a celebrated Fr. actress, was b. at Condé in Hainault. After playing in provincial towns and foreign countries, she made her début at the Comédie Française in the part of Phœdra. The time of her fame was 1743-65; she played many rôles and excelled in Voltaire's tragedies.

Clairvaux, a hamlet, France, in dept. Aube, about 30 m. S.E. of Troyes. It is noted for its abbey, founded in 1114 by St. Bernard, after whose death it was improved and enlarged. It was suppressed at the revolution, and the building is now used as a prison. Pop. 700.

Clairvoyance, the alleged faculty of being able to see objects not ordinarily visible to human eyes, and from these objects to describe events

that are taking place at a distance. Such a faculty is said to be due to hypnotic power. (See PSYCHICAL RESEARCH.)

Clam, the term applied to many Eulamellibranchiate molluscs varying in importance in different countries. In Scotland the scallops (*Pecten*) receive this name; they are edible creatures which swim by flapping the valves of their shells. In England the very various genera *Macra* and *Mya* are known as Cs., *Mya truncata* being the soft C. The term largely applied in the U.S.A. to several species of bivalve molluscs of somewhat the same order as the Scotch scallops and the English cockle. The name originates from the firm manner in which the creature closes its shell when alarmed. Two kinds are eaten in the U.S.A., the soft-shell clam and the hard shell. The latter is sent in great quantities to the markets. It is eaten both raw and in a soup called clam chowder. The species are *Venus mercenaria* or hard C., and *Mya arenaria* or soft C.

Clamart, a commune of France in the Seine dept., 5 m. S.W. of Paris. The chief industries are linen manufacture and stone quarrying. Pop. 22,735.

Clamecy, a tn., Nièvre, France, at confluence of Yonne and Bouvron, 38 m. N.E. of Nevers. Has a considerable trade in firewood. Pop. 4960.

Clam-Martinic, Heinrich, Count (b. 1863), Austrian statesman and Czech feudal noble, son of Richard, Count C.-M., b. in Bohemia. Before the Great War leader of the Bohemian party in the Reichsrath. In the hope of securing Czech adherence, the Emperor Karl called on him to succeed the farscible Körber as Premier of Austria in 1916. Clam's task was the thankless and long-standing one of making a compromise (*Ausgleich*) with Hungary together with the restoration by edict of parliamentary government. The swift progress of self-determinist aspirations among the constituent peoples of the empire, however, prevented his Gov. from contemplating either of these tasks (consult Glaise-Horsleben, *Collapse of the Austro-Hungarian Empire*, Eng. trans. 1930). In May 1917 C.-M. tried to form a 'People's Ministry' on the broadest foundations, but only encountered the fiercest opposition from the mutually suspicious nationalities of the empire. His fall in July 1917 was directly due to the influence of the Slovenian deputy Korosec over the weak Karl, and eventually the plan for giving a federal constitution was entrusted to

the abler Dr. von Seidler, but in vain, for the doom of the old dual monarchy was sealed (*see also* under AUSTRIA-HUNGARY).

Clan (Gaelic *clann*, meaning children), an early form of organisation, of which the Highland C. of Scotland was the most highly developed of recent times. The Scottish C. was confined to the Highland regions, and was composed of the common descendants of the same progenitor. The chief, who was usually one of the oldest members, represented this common ancestor, and exercised patriarchal control over the clansmen. The name of the C. was frequently composed of that of the founder, with the addition of Mac (meaning 'son of'); thus we have the C. MacDonald, the C. MacPherson, and similar names. Theoretically speaking, every Scotsman named MacDonald was a descendant of the original Donald, and brother to every other MacDonald. The chief of a C. thus ruled by the right of primogeniture, and was revered and obeyed by his clansmen. Each C. in Scotland occupied a separate portion of territory, and not infrequently bitter rivalry existed between the neighbouring Cs. The near relations of the chief were generally in the position of sub-chiefs, and exercised some authority; this was not very well defined, and any disputes which arose in consequence were referred to a council of the C. In the later years of the Cs. the Scottish Gov. made it a rule that every C. should supply at Court a representative of rank to give security for their good behaviour. Should a C. refuse to do so, they were termed a 'broken C.,' and were proscribed and in a state of outlawry. The MacGregor C. was a notable example of such, holding their lands for long by the coir or glaive, or right of sword. The members of this C. who wished to earn their living in the lowlands were obliged to alter their name, which accounts for the variations found, such as Gregor, Gregory, and Grierson. The old Scots Acts always speak of the Cs. in terms of opprobrium. The rebellions of 1715 and 1745 were the means of inducing the British Gov. to break up the Cs. Hereditary jurisdiction was accordingly abolished, the people were disarmed and forced to cease wearing their national costume, and at the present time practically no traces of the C. remain save those of sentiment.

Clan Line, an Eng. steamship line. It started business in 1878, when steamers sailed fortnightly from Glasgow and Liverpool to Bombay and Karachi. Since then the company

has extended its calling stations to all parts of the world. Sir A. B. T. Cayzer is the Chairman of the Company, which now owns fifty steamships totalling 275,000 gross tons. The C. L. controls the British and S. American Steam Navigation Co.; the Scottish Shire Line, and the Cia. Naviera de los Estados de Mexico, owning some twenty-nine steamers of 97,000 gross tons.

Clan-na-Gael, the name of a secret society formed by Irish Fenians in the U.S.A. about 1883. Its object was to force the British Gov. into giving Ireland Home Rule. The members of this society believed that the only way in which they could achieve their end was to terrorise the parliament, as well as the public. The headquarters of the society was Chicago, but it had agents in England and Ireland, who were responsible for the assassinations and the dynamite outrages of 1883.

Clanvowe, Sir Thomas (*d.* 1400), was a friend of Prince Hal. Professor Skeat has attributed to him the authorship of *The Cuckoo and the Nightingale* (written about 1400-10), a poem which has long been thought to be by Chaucer.

Clanwilliam, a tn. 135 m. N.E. of Cape Town in a fertile dist. producing corn and oranges. The Gov. cedar forests are near. White pop. 350.

Clapham, two wards (N. and S.) in the met. bor. of Wandsworth (*q.v.*), London. The station styled Clapham Junction does not serve C. at all, being wholly within the parl. div. of Battersea. C. Common, a public recreation ground of 200 acres, contains three large ponds.

Clapham Sect, The, a body of phil. anthropic dissenters, having among their number Wilberforce and Clarkson, who resided at Clapham. Their chief object was to bring about the abolition of slavery.

Clapperton, Hugh (1788-1827), a Scottish explorer, *b.* in Dumfriesshire, and running away from home at the age of thirteen, went to sea. He accompanied Dr. Oudney and Denham on their exploring expedition by way of Tripoli and Murzuk to Kuka, on Lake Tchad, which was reached in 1822, and thence to Sokoto, returning to England in 1825. The results of this expedition had been more of an anthropological than a geographical nature, so in Aug. 1825 a second expedition set out from the Bight of Benin to determine the course of the Niger. All the members of this expedition perished save Richard Lander, C. being the last to die, at Changary, near Sokoto.

Clique (Fr. *cliquer*, to clap), a body of men hired to applaud in theatres,

and thus ensure the success of a play. According to Suetonius, the Emperor Nero had 5000 paid applauders who attended the performances of his plays. From the Rom. origin of the custom, the *claqueurs* are sometimes called *Romains*. The C. became an openly organised institution in Paris towards the end of the eighteenth century. The leader, upon whom the responsibility rests, is called *entrepreneur de succès dramatique*, and under him are *pleureurs* (weepers), *bisseurs* (who cry *bis*, or *encore*), and *rieurs* (laughers), etc. The Théâtre Français and the Grand Opéra, with a few of the leading Parisian theatres, have with more or less success abolished the C. from their houses.

Clare, a maritime county, Irish Free State, in the prov. of Munster, situated between Galway Bay on the N. and the Shannon estuary on the S. C. is the seventh of the Irish counties; its length is 67 m. and the greatest breadth 43 m., the average breadth being 21 m. The surface is very irregular; there are mountains in the E., W., and N.W., whilst the centre is occupied by an undulating plain which runs from N. to S. The chief ranges of mountains are the Slieve Boughta Mts., which lie partly in Galway, and the Slieve Bernagh Mts.; the chief rvs. are the Shannon and the Fergus. Oats, potatoes, wheat, and barley are grown, slate and black marble are worked and the rearing of sheep and cattle is largely carried on. Limestone, lead and slate are found, and beds of carboniferous limestone. There are as many as a hundred small lakes, and many chalybeate springs; the salmon fisheries are of importance, and in the N. are extensive oyster-beds. The chief towns of the county are Ennis, the capital, Kilrush, Ennistimon, and Killaloe. Until the time of Elizabeth, C. was called Thomond; it derived its present name from Thomas de Clare, to whom was given all the land in the district that he was able to conquer. Area, 768,265 ac.; pop. 95,028.

Clare: (1) A tn. of England in Suffolk, on the R. Stour, 12 m. from Bury St. Edmunds, on the London and North-Eastern Railway. It has an old castle, formerly the seat of the earls of Clare, and an Augustinian priory of the thirteenth century. Pop. 1340. (2) A tn. of S. Australia in Stanley co., chiefly noted for its vineyards and orchards. Pop. 1603.

Clare, John (1793-1864), an Eng. poet, the son of a poor labourer. He was b. at Helpstone, near Peterborough, and has often been called the 'Northamptonshire peasant poet.' At the age of seven he was employed

on a farm, and later received a post as under-gardener, but in 1812 he ran away and joined the militia. For a time he lived with gypsies, then worked as a burner on a lime-kiln, but, being dismissed, was obliged to seek for parish relief. C. was fond of learning old songs, and when very young scribbled verses of his own. His inspiration came from Thomson's *Seasons*, and all his poems deal with out-of-door life and farm scenes. *Poems Descriptive of Rural Life and Scenery*, 1821, was well received, and was followed in the same year by *The Village Minstrel*. C. was helped by men of influence and rank, by whom he was received as a friend, but to the end of his life was poor. The *Shepherd's Calendar*, 1827, and the *Rural Muse*, 1835, were not so successful, though the latter brought him £40 and was praised by Christopher North. He died in the county asylum, Northamptonshire, where he composed his last poem, *I am; yet what I am who cares or knows?* Consult the biographies by F. Martin, 1865, and J. L. Cherry, 1873, and especially *Sketches in the Life of John Clare*, written by himself and edited by Edmund Blunden (1931).

Clare, John Fitzgibbon, first Earl of (1749-1802), Lord Chancellor of Ireland. He was an antagonist of Grattan, strongly opposed Rom. Catholicism, and promoted the Union. He was raised to the peerage in 1795.

Clare, St. (1191-1253), the founder of the order of Poor Clares. She came of a noble family of Assisi; but, through the influence of St. Francis, she gave up her wealth and her social life. At his advice, she founded her order, the Franciscan order for women, in 1212. St. C. was canonised two years after death by Pope Alexander IV. Consult Denmore, *Vie de Sainte Claire d'Assisi*, 1856.

Clare Hall, one of the colleges of the Cambridge University. It was first founded in 1326 as 'University Hall,' but the building was destroyed by fire in 1342. It was rebuilt by Elizabeth de Burgh, Countess of Clare, who in 1347 founded the new college, which was called C. H., for the purpose of educating clergy to take the place of those who had died during the plague. The present building dates from 1638, and the new chapel was consecrated in 1769. Cludworth was master of Clare, and among its noted fellows have been Bishop Latimer and Archbishop Tillotson.

Clare Island, an is. off Mayo, W. coast of Ireland, at the mouth of Clew Bay. Length, about 4½ m.; area, 3946 acres. The village of Westport stands on its W. coast, and a light-house on the N.W. Pop. 460.

Claremont : 1) A municipality of Cape Colony, 6½ m. from Cape Town. The National Botanical Gardens of S.A. in surroundings unsurpassed for grandeur are approached from here. The municipal gardens contain a famous collection of trees. Sir John Herschell's Observatory formerly stood here. Pop. (white) 6000. (2) A tn. in Sullivan co., New Hampshire, U.S.A., on the Sugar R. and on the Boston and Maine Railroad. It manufactures machinery, cotton, and woollen goods, paper, shoes, etc. Pop. 12,377.

Claremont Park, a royal seat in Surrey, belonging to the Epsom div., 5 m. S.W. of Kingston. It was originally built by Sir John Vanbrugh in the eighteenth century, and has since been the residence of Lord Clive, Louis Philippe of France (*d.* 1850), Princess Charlotte of Wales (*d.* 1817), and in 1882 it became the property of the late Queen Victoria.

Clarence, an Eng. ducal title, sometimes conferred on a younger member of the royal family. It was first held by Lionel (1338-68), the second son of Edward III., in 1362, on the occasion of his marriage with Elizabeth de Burgh. Other notable Dukes of Clarence are Thomas (1389-1421), second son of Henry IV., who died at the Battle of Beaugé; George (1449-78), brother of Edward IV., who died in the Tower; William IV. (1765-1837), previous to his accession; and Albert Victor Christian Edward (1864-92), the eldest son of King Edward VII.

Clarenceux, or **Clarencieux**, an Eng. heraldic officer, being the first of the two provincial kings-of-arms. His jurisdiction lies over England S. of the Trent, and it is his function to inspect the arms of all those who live within his province. He may also grant arms with the sanction of the Earl Marshal.

Clarendon, Edward Hyde, first Earl of (1609-74), statesman and historian, was a prominent figure in the reigns of the two Charles. In the Long Parliament he gave valuable support to the cause of the king. He assisted in the impeachment of Strafford, and vigorously opposed measures designed to limit the monarch's authority. With Falkland and Colepeper he formed what was for all practical purposes the king's advisory council, but Charles I., determined to go his own way, and knowing the triumvirate would not approve, did not inform it of his intention to arrest the five members. After the death of Charles I. C. became one of the principal advisers of Charles II., and went with him into exile. At the Restoration he was created Baron

Hyde, and in the following year Earl of Clarendon. He was appointed Lord Chancellor in 1658, and the appointment was confirmed when the king came into his own. His importance was enhanced by the marriage of his daughter Anne to the Duke of York,



LORD CLARENDON

heir-presumptive to the throne. As a minister he was unpopular, and in 1667 he fell from his high estate, the victim of a Court cabal. In the same year he was impeached, but though the Lords did not convict him, he went abroad, where he remained during the rest of his life. There he finished his *History of the Rebellion*, which was published posthumously (1702-4). There is a biography by Thomas Lister, 1837.

Clarendon, George William Frederick Villiers, fourth Earl of (1800-70), an Eng. statesman and diplomatist. Ambassador to Madrid in 1833, but returned to England on the death of his uncle (1838), when he succeeded to the title. In 1840 he was made Lord Privy Seal in Melbourne's ministry, and became Chancellor of the Duchy of Lancaster. In 1847 he was Lord-Lieutenant of Ireland, and displayed rare tact in quietening the Smith O'Brien agitators. Consult his life in Thornton's *Foreign Secretaries of the Nineteenth Century*, vol. iii., 1881-82.

Clarendon, Constitutions of, were laws, passed in 1164 by a council of bishops and barons, at the hunting-lodge of C., near Salisbury, by means of which Henry II. was enabled to check the power of the Pope in Eng-

land. The constitutions were sixteen in number, the chief enactments being that titles to ecclesiastical estates and the election of church dignitaries lay within the province of the Crown; that no beneficed clergyman might leave the country without the king's consent; and that no appeal to Rome could be presented without the consent of the *curia regis*. Pope Alexander III. refused to ratify the constitutions, and the quarrel which resulted between Henry and Becket led to the murder of the latter.

Clarendon Park, formerly a royal forest of England, in Wiltshire, 2½ m. from Salisbury. The remains of the royal hunting seat, where Henry II.'s council enacted the Constitutions of Clarendon (1164), may still be seen.

Clarendon Press, the former name of the press of the University of Oxford. It has been known since 1830 as the Oxford University Press, and is now largely a commercial firm, in which the delegates of the University have a considerable influence. It was founded in 1672, and had its first home in the upper part of the Sheldonian Theatre at Oxford. In 1711-13 a new printing house was erected for it by Sir John Vanbrugh a little to the N. of the theatre and flanking Broad Street. The name came from the funds being provided by Lord Clarendon's *History of the Rebellion*, the perpetual copyright of which was given to Oxford University by his son. This building was appropriated for use as a museum and lecture rooms, and the present Oxford premises of the press in Walton Street were erected by Blore and Robertson in 1825-30. All the subsidiary processes of book production, including type-founding and stereotyping, are done by the firm on its own premises, while paper is supplied by the University mills at Wolvercote. The C. P. carries out within its own walls the whole process of the production of Bibles, of which it has the right by royal patent. Together with the Cambridge University Press, it purchased the entire copyright of the Revised Version (1881-85), and the Oxford Press alone sold over a million copies of the N.T. on the day of publication. By an Act of Parliament (15 Geo. III., chap. 53), the press has the perpetual copyright of all works belonging to it, and later given or bequeathed to it, provided such are printed on the University presses. This was confirmed by the Copyright Act (5 and 6 Vict., chap. 45).

Clarens, a vil. of Switzerland in the canton of Vaud, on Lake of Geneva, 3½ m. from Vevey. It has a mild, pleasant climate in winter, and is

therefore much frequented by persons suffering from tubercular troubles. Altitude 1245 ft. With other villages it forms the dist. of Montreux, which has a pop. of about 15,000.

Claret, a name used in England to denote in general the red wines of Bordeaux. Bordeaux wines are produced in the prov. of Gironde, one of the best known coming from Médoc. Other celebrated clarets come from the vineyards of Château Lavite, Château Margaux, and Haut-Brion. In France the word *clairet* was applied to light-coloured red and yellow wines to distinguish them from *vins rouges* and *vins blancs*. The word, as used by us, is not known in that country. See WINE.

Claretie, Jules (properly **Arséno Arnaud**) (1840-1913), a Fr. novelist, playwright, and journalist, b. at Limoges, Haute Vienne. He acted as war correspondent during the Franco-Prussian War; dramatic critic to *L'Opinion Nationale*, 1867; and had great influence as a political writer. His plays of the Revolution—*Les Muscadins*, 1874; *Le Régiment de Champagne*, 1877; *Les Mirabeau*, 1879—have been extremely popular. His novels include: *L'Assassin*, 1866; *Mademoiselle Bertin*, 1868; *Le Train 17*, 1877; *Monsieur le Ministre*, 1882; *Le Prince Zilah*, 1884; and *L'Accusateur*. He has also written extensively on historical subjects: *Cinq ans Après*, 1877; *Les Prussiens chez eux*, 1872; *La Vie à Paris*, 1896. A complete edition of his works was pub. in 1897-1904.

Clarges, Sir Thomas (d. 1695), was a politician. He was first of all in the service of Richard Cromwell, and then became a supporter of Monk in his plans for the restoration of Charles II.

Claribel, the pseudonym of **Mrs. Charlotte Alington Barnard** (1830-69), a ballad-writer. She was b. in London, and became a pupil of Madame Parepa and Signor Mario. She wrote many songs and ballads that were and still are very popular, such as *Come back to Erin*. These were published in volume form as *Fireside Thoughts, Ballads, etc.*, 1865, and *Thoughts, Verses, and Songs*, 1877.

Clarification, the process of refining a liquid by separating or removing the substances which make it turbid. This can be done by straining through a sieve; by using a 'centrifugal' or circular vessel, with a small outlet in the centre, which, when revolved at a high speed, will clear the liquid by lifting the particles of foreign matter to the surface; and by adding to the liquid gelatine, white of eggs, bullocks' blood, etc.

Clarinet, or **Clarinet** (It. *clarinetto*,

from Lat. *clarus*, clear), a musical instrument made of wood, having a fixed mouthpiece containing a reed by which the sound is produced. It is supposed to have been invented in 1690 by Johann Christopher Denner of Nürnberg, who probably developed it out of the chalumeau, a wind instrument of a primitive kind. The reed is made from a thin slip of a Spanish reed (*Arundo sativa*), and is kept in place on a flattened table by means of a ligature. The tube of the instrument has eighteen holes, of which thirteen have keys. In orchestral music, three instruments of different dimensions are employed, namely A, B♭, and C, but the latter is going out of use. In military bands, the Cs. used are B♭ and E♭. There is also a Tenor C., known as the Basset-Horn, and a Bass C., usually pitched in B♭, which is an octave lower than the usual instrument. The C. has a very wide range, namely over three and a half octaves, and is, therefore, very popular in orchestral music. Mozart's E♭ major symphony was the first work written especially for Cs. Other composers who have used the C. for orchestra are Beethoven, Mendelssohn, Spohr, and Rossini.

Clarion: (1) A shrill-sounding trumpet, not now in use, formerly employed as a signal to arms. (2) An organ stop, having pipes with reeds, which give a piercing sound like that of a C. (3) A bearing much in use in early English heraldry.

Clark, Champ (1850-1921), American statesman, b. Anderson County, Kentucky, U.S.A., March 7, 1850. He was educated in Kentucky University and Bethany College, and admitted to the Bar. Moving to Bowling Green, Missouri, he was elected its City Attorney, 1878-81, and Prosecuting Attorney of Pike County from 1885 to 1889. After being in the state House of Representatives for three years, he was elected to the Federal Congress, 1893-5, and from 1897 to 1919. He served as Speaker of the National House of Representatives from 1911 to 1919. He was a candidate for the Democratic Presidential nomination in 1920. At the Baltimore convention he led in many ballots, many times having a majority, but not the two-thirds necessary under the laws of the Democratic party. He was finally defeated by Woodrow Wilson and retired from public life an embittered man. He died in Washington March 2, 1921.

Clark, Charles Heber, see ADELER, MAX.

Clark, Edwin Charles (1835-1917), an Eng. barrister, was b. near Shrewsbury, and graduated at Trinity College, Cambridge, of which he be-

came fellow. Subsequently he was appointed Regius Professor of Civil Law at Cambridge. Author of *Early Roman Law: Regal Period*, 1872; *An Analysis of Criminal Liability*, 1880; *Practical Jurisprudence*, 1883; *Cambridge Legal Studies*, 1888; *History of Roman Private Law*, vol. i., 1906.

Clark, Francis Edward (1851-1927), an American clergyman, b. at Aylmer in Quebec, Canada. He became pastor of a Congregational church at Portland, Maine, in 1876, where he founded (1881) the Young People's Society of Christian Endeavour. He was editor (later honorary editor) of the *Christian Endeavour World* from 1886 until his death, and president of the United Society (1887-1909). He travelled round the world five times, and wrote many books, including *Our Journey Around the World*, and *World-wide Christian Endeavour*.

Clark, George Rogers (1752-1818), an American frontier general, b. in Albemarle co., Va.; educ. at a common school. Explored the region W. of the Alleghanies in 1772; practised as a surveyor; engaged in many encounters with the Indians on the Ohio R. in 'Dunmore's War.' Removed to Kentucky (then a mere district) in 1776 and became one of its delegates to the Virginia Legislature. In the War of Independence he defeated Lieut.-Governor Henry Hamilton, 1779, at Fort Sackville; for this and similar services C. received a grant of land from the U.S.A. Gov. He took part in the Fr. operations against Spain in the Mississippi valley. He d. in poverty near Louisville, Ky.

Clark, Sir James (1788-1870), a Scottish physician. He practised in Rome (1819-26), and, on the accession of Queen Victoria, was appointed physician-in-ordinary to Her Majesty. Wrote: *A Treatise on Pulmonary Consumption*, 1835; *Remarks on Medical Reform*, 1842 and 1843.

Clark, John Bates, an American economist, b. at Providence, Rhode Is., Jan. 26, 1847. He studied at Brown University, Amherst College, and at the universities of Heidelberg and Zurich, and was appointed professor of political economy and history at Carleton College, Minnesota, in 1877, and at Columbia University in 1895. He was elected president of the American Economic Association, 1893-95. He has written *The Philosophy of Wealth*, 1886; *Capital and its Earnings*, 1888; *Wages*, 1889; *The Control of Trusts*, 1901; *The Distribution of Wealth*, 1901; *The Problem of Monopoly*, 1904; *Essentials of Economic Theory*, 1907; *The Modern Distributive Process*, with

F. H. Giddings; *Control of Trusts* enlarged ed., with J. M. Clark, 1912; and has contributed numerous articles to various scientific periodicals.

Clark, Josiah Latimer (1822-98), an Eng. electrician and engineer, *b.* at Great Marlow, Buckinghamshire. He took a junior position on the construction of the Britannia tubular bridge, after which he became assistant-engineer to the Electric Telegraph Co., with whom he remained till 1870. He worked out the system of enclosing underground wires by means of gutta-percha coating, of sending messages by the pneumatic tube, and invented the 'double-cap invert' insulator and the 'Clark cell.' He also made investigations with regard to submarine cables, and invented 'Clark's compound,' a mixture of asphalt, hemp, and silica, with which such cables are now covered. The practice now in use of stamping telegrams and of registering abbreviations for cablegrams originated from a suggestion by C. He pub. several works, including *Electrical Tables and Formulae*, 1871, and a *Dictionary of Metric and Other Useful Measures*, 1891.

Clark, Sir William (*b.* 1876), first High Commissioner in Canada for the British Gov. in Great Britain. Began civil service career in the Board of Trade. Was secretary of the Royal Commission on Food Supply during the Great War. Private secretary to Mr. Lloyd George when the latter was Premier; also served on the Viceroy of India's Council as adviser on commerce and industry; and was Comptroller-General of the Department of Overseas Trade.

Clark, William Tierney (1783-1852), an Eng. civil engineer, *b.* in Bristol. He became chief engineer to the West Middlesex Waterworks, and constructed the Thames and Medway canal, the Hammersmith suspension bridge (1824-27), and the suspension bridge over the Danube at Budapest (1839-49).

Clarke, Adam (1762-1832), a Wesleyan Methodist preacher, *b.* co. Londonderry. He brought out a *Bibliographical Dictionary* (1802-6) in eight vols., but his chief work was a *Commentary on the Bible* (8 vols. 1810-26). He also wrote *Memoirs of the Wesley Family*, and his own biography in *Account of the Infancy, Religious and Literary Life of Adam Clarke* (3 vols. 1833). Also consult the Life written by Etheridge (1858).

Clarke, Sir Andrew (1824-1902), an Eng. military officer and administrator. Became director of works for the navy, 1864-73, in which capacity he reorganised the arsenals at

Plymouth, Chatham, Malta, etc. Later he was minister of public works in India, and inspector-general of fortifications. Consult his Biography by R. H. Vetch, 1905.

Clarke, Charles Cowden (1787-1877), an Eng. author, and an intimate friend of the Shelley group. His lectures on Shakespeare, delivered in London during the years 1834-54, made him famous. With his wife he pub. an annotated edition of Shakespeare, 1869, and produced *The Shakespeare Key*, 1879. He also pub. *Tales from Chaucer*, 1833; *Shakespeare Characters*, 1863; *Recollections of Writers*, 1878, etc.

Clarke, Edward Daniel (1769-1822), an Eng. traveller and mineralogist, *b.* at Willingdon, Sussex. After having graduated at Cambridge (1790), he accompanied Cripps on a tour through Europe, Egypt, and Asia Minor (1799-1802), from which he brought back the colossal statue of the Eleusinian Ceres, now in the Fitzwilliam Museum. He was appointed Professor of Mineralogy at Cambridge in 1808. He pub. his *Travels*, 1810-23; *Greek Marbles brought from the Shores of the Euxine, Archipelago, and Mediterranean*, 1809. Consult his Life by Bishop Otter, 1825.



[Typical Press

RT. HON. SIR EDWARD CLARKE

Clarke, Rt. Hon. Sir Edward George (1841-1931), an Eng. barrister, eldest

son of J. G. Clarke, a London jeweller. Educated at Coll. Ho., Edmonton; City Commercial Sch.; Cit. Lond. Coll.; King's Coll. evening classes. He was a writer in the India Office, 1859-60, and Tancred law student, 1861, and was called to the Bar three years later. He sat in parliament, representing Southwark (1880), Plymouth (1880-1900) and City of London (Jan.-June 1906). In 1886, during Lord Salisbury's ministry, was appointed Solicitor-General and knighted. The chief cases that he was connected with in his legal career were the Penge case (1877), Bartlett case (1886), the Baccarat case (1891), and the Jameson case (1896). He disagreed with his party over S. Africa in 1899, and over 'Tariff Reform' in 1903. He was made a privy councillor in 1908, and retired from the Bar, 1914. Died suddenly April 26, 1931. His publications include a *Treatise on the Law of Extradition*, 1866 (4th ed. 1903); *Public Speeches*, 1888-90 and 1890-1900; *Selected Speeches*, 1908; *Easy Shorthand*, 1907; *Swiftland*, 1909; *The Story of My Life*, 1918; *Benjamin Disraeli, the Romance of a Great Career*, 1926.

Clarke, Sir George Sydenham (b. 1848), an Eng. military officer. He was employed at the War office as secretary of the Colonial Defence Committee, 1885-92, and appointed on the Committee on War Office Reorganisation, 1900-1. From 1901 to 1904 he was Governor of Victoria, when he was made secretary of the Committee of Imperial Defence. Created Lord Sydenham, 1913, on his relinquishing the governorship of Bombay, to which he was appointed in 1907. He has written on the science of war, his chief works being: *Fortification, Past, Present, and Future*, 1890; *Imperial Defence*, 1898; and *Russia's Sea Power*, 1898.

Clarke, James Freeman (1810-88), an American Unitarian minister, b. in Hanover, New Hampshire, U.S.A. He graduated at Harvard, 1829, and at the Cambridge Divinity School, 1833. He took part in the founding of the Unitarian Church of Disciples in Boston (1841), to which he acted as pastor 1841-50 and 1853-88. He was appointed Professor of Natural Religion and Christian Doctrine (1867-71) and lecturer on ethnic religions (1876-77) in Harvard University. C. was a keen advocate of the anti-slavery cause, and a voluminous writer. His works include: *Campaign of 1812*, 1848; *Eleven Weeks in Europe*, 1852; *The Christian Doctrine of Forgiveness of Sin*, 1852; *Orthodoxy*, 1866; *Steps of Belief*,

1870; *Ten Great Religions*, 1871-83; *Self-Culture*, 1882; *The Ideas of the Apostle Paul translated into their Modern Equivalents*, 1884; *Manual of Unitarian Belief*, 1884; *Anti-Slavery Days*, 1884; and *Vexed Questions*, 1886. Consult his *Life* by E. E. Hale (1891).

Clarke, Marcus Andrew Hislop (1846-81), an Australian writer, b. at Kensington, London. He emigrated to Victoria at the age of eighteen, and entered upon a journalistic career, writing under the pseudonym 'Peripatetic Philosopher.' His best work is a novel on the cruelties of the life in a prison settlement, *His Natural Life*, published in 1874. Among his other works are: *Long Odds*, 1868; *Holiday Peak*, 1873; and *Gentleman George's Bride*.

Clarke, Mary Victoria Cowden (1809-98), wife of Charles C. C., was a pupil and friend of Mary Lamb. In addition to the works written in conjunction with her husband, she published: *Concordance to Shakespeare*, 1845; *The Girlhood of Shakespeare's Heroines*, 1850; *The Iron Cousin*, 1854; *World-noted Women*, 1857; a Biography of her husband, 1887; and *My Long Life: An Autobiography*.

Clarke, Samuel (1675-1729), an Eng. divine and philosopher, b. in Norwich. He could not agree with the theories of Descartes in vogue at the time, and accordingly became a follower of his friend Newton. In 1706 Queen Anne chose him as her chaplain, and in 1709 appointed him to the rectory of St. James, Westminster. His treatise, *Scripture Doctrine of the Trinity* (1712), in which he stated that the doctrine of the Trinity was not held by the early Church, was considered semi-Arian, and C. was brought before Convocation. His famous discussion with Leibnitz as to the relation of time and space to God was undertaken by request of the Princess of Wales, and the papers were pub. in 1717. C. delivered the Boyle lectures in 1704-5, choosing for his subject *The Being and Attributes of God*. C. won a very high reputation as a philosopher, and in the sphere of metaphysics was regarded as second only to Locke. Other essays of his to be noted are *A Discourse concerning the Unalterable Obligations of Natural Religion*, 1708; and a *Philosophical Inquiry concerning Human Liberty*, 1715. Consult his *Life* by Hoadley, prefixed to the collected ed. of his Works, 1738-42; and the memoir by Whiston, 1741; also Sir Leslie Stephen, *English Thought in the Eighteenth Century*.

Clarke, William Branwhite 1798-1878), an Eng. geologist, b. at E

Bergholt, Suffolk. In 1840 he went out to Australia and became vicar of a church in Willoughby, New South Wales, 1847-70. C. had previously made many geological investigations on the Continent of Europe. He discovered gold in Australia in 1841, tin in 1849, and diamonds in 1859. He carried on valuable investigations, and obtained the Murchison medal from the Royal Geographical Society in 1877. He wrote *Remarks on the Sedimentary Formations of New South Wales*, 1878, and many other scientific papers.

Clarksburg, a city in W. Virginia, heart of bituminous coal region, natural gas, factory for making toy marbles, glass factories. Pop. 28,866.

Clarkson, Thomas (1760-1846), an Eng. anti-slavery agitator. In 1785 he won a prize for his Latin essay, *Anne liceat invitò in servitutem dare?* of which his Eng. translation (1786) had a very large sale. From this time he worked with ceaseless energy to bring about the abolition of African slavery by speaking in the chief towns of England and in Paris, and by issuing numerous pamphlets on the subject. In 1807 the Bill for the abolition of the slave trade became law, on which occasion Wordsworth wrote his sonnet, 'Clarkson, it was an obstinate hill to climb,' and in 1808 C. himself published a *History of the Rise, Progress, and Accomplishment of the Abolition of the African Slave-Trade*. He was active in founding an Anti-Slavery Society (1823), the object of which—to suppress slavery in the W. Indies—was accomplished by the passing of the Emancipation Bill in 1833. In his latter years he founded institutions for sailors at seaports, and did much philanthropical work. His essays include, *On the Slavery and Commerce of the Human Species*, 1785, and *The Cries of Africa to the Inhabitants of Europe*, 1822. He also wrote *Memoirs of the Private and Public Life of William Penn*, 1813. Consult Taylor, *Biographical Sketch of Thomas Clarkson*, 1839, and Elmes, *Life of Thomas Clarkson*, 1870.

Clarksville, a city in Tennessee, U.S.A., cap. of Montgomery co., 10 m. N.W. of Nashville, is a railway centre and has an important trade in tobacco and a snuff factory. Pop. 9242, of whom 41 per cent. are negroes.

Classical Association, The, founded in London, Dec. 1903, partly an outcome of the numerous controversies over classical education and in particular over 'compulsory Gk.' at the universities, which started as early as 1867 in *Essays on a Liberal Education*. The association aims at pro-

moting the development and well-being of classical studies by every possible means, including free discussion of methods and friendly intercourse between all interested in the subject. It took up the reformed Latin pronunciation (first proposed 1871) in 1904-5. The headquarters of the Association are at 61 South Molton Street, W. 1., and the President in 1930 was Dr. Temple, Lord Archbishop of York. Membership is open to all for an entrance fee of 5s. and an annual subscription of 5s., while a life composition subscription is £4. The chief publications are *Proceedings of the Classical Association*, and *The Year's Work in Classical Studies*.

Classics, The (through Fr. *classique* from Lat. *classicus*). The word *classic* was first used in its present sense by Gellius, who contrasts a *classicus scriptor* with one who is *proletarius*. The Rom. people were divided by Servius Tullius into five classes, the lowest class being called *proletarius*. The adjective *classicus*, from *classis*, literally belonging to a class, by transference meant belonging to the first or highest class. A *classic* writer is, therefore, one who belongs to the first class. A book is also called a *classic* if it is of such a standard that it may be placed among the highest class of books. It is thus defined by Lowell, in *Among My Books*: 'A classic is properly a book which maintains itself by virtue of that happy coexistence of matter and style.' Thus every country is said to have a *classical* period in its literature—that is, a particularly fertile period when there is a great output of books in which imagination, thought, and style are perfectly blended. The so-called *classical* period of Eng. literature, however, is not her most flourishing period, but the period of Dryden and Pope, when it was the fashion of the day to adhere strictly to the rules and models laid down by the writers of anc. Greece and Rome. For, as Gk. and Rom. literature had long been regarded as affording perfect examples in every form of writing, the word *classic* was applied in particular to works of Gk. and Rom. authors. The term 'the classics' is, therefore, applied to Gk. and Rom. literature, and is often applied to the languages themselves. Thus, the phrase 'the study of the classics' does not merely mean the study of anc. classical literature, but includes the study of the grammar and construction of the Gk. and Latin languages. Modern classical scholarship begins with the Renaissance, although much work on Gk. literature had already been done by the scholars

of Alexandria, who in the third century B.C. classified the texts that were then extant. After the Renaissance scholarship was naturally intent on going over the newly-discovered treasures of classical literature. The printing of the classics in Italy in the sixteenth century—which was an event in itself—made classical study an integral part of the humanistic education, advocated by such a man as Erasmus. The founder of historical criticism was the younger Scaliger (1540–1609), who was also an adept at textual emendation, and his methods were inherited by the two great Eng. scholars of the eighteenth century, Bentley and Porson. In the nineteenth century scholarship in the hands of the Ger. scholars was mostly devoted to the editing and collating of the classical texts, while in England the Porsonian tradition passed from Cambridge to Oxford in the person of Elmsley (1773–1825). In Victorian England scholarship was marked by Jebb's ed. of Sophocles and Munro's ed. of Lucretius, Jowett's translation of Plato, Thirlwall's and Grote's History and Liddell and Scott's Lexicon. In the U.S.A. during the nineteenth century classical studies became of increasing importance, represented at Harvard by the Latin scholar Lane, and at Yale by the Gk. scholar Seymour. An American School was founded at Athens in 1881 and a British School two years later. Since then archaeology has been a stimulus to modern scholarship, which in recent years has been actively fostered by societies both in England and America, and this in spite of the fact that the value of a classical education has been called in question. The most monumental work of any single American scholar is the *Lexicon Plautinum*, recently completed by G. Lodge. The *Loeb Library* of classical authors, text and translation, was initiated in the U.S.A., and additions are made to it each year.

Classification (Lat. *classis*, a class), the name given to the process whereby a number of objects which are alike in one or more respects are collected under a common name. Systematic C. is essential to any science; artificial C. is the name given to a collection of facts for some special purpose, such as statistics of various kinds. Each science has its own system of C., but the problem which has engaged the minds of scientists and philosophers from very early times is that of the relation of sciences to each other—that is, the C. of sciences as a whole. Of the many attempts

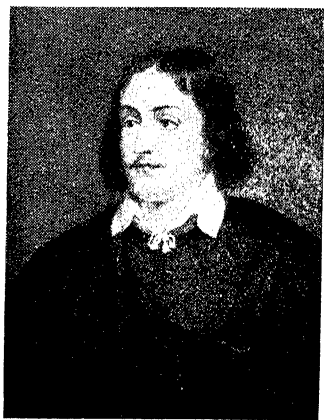
made in this direction, those of Bacon, Comte, and Spencer may be briefly outlined as being representative of various views. Bacon's C. was based on a subjective criterion of the various faculties which are concerned in the study of different sciences. History is, according to this theory, the science of memory, philosophy that of reason, etc. Comte's C. was based on an objective criterion; all sciences pass through three stages, according to him—theological, metaphysical, and positive. Of the positive sciences mathematics is the lowest, sociology the highest. Spencer classified sciences under three heads, as abstract, such as logic, etc.; abstract concrete, such as physics, mechanics, etc.; and as concrete, such as astronomy, sociology, etc. It is obvious that no system of C. can be regarded as perfect, as a preconceived theory inspired them. For different systems of C. see, in addition to the writers named above, Aristotle, Plato, Hobbes, Bentham, Wundt, etc.

Clathropteris, a genus of fossil ferns, founded by Brongniart. The typical specimen, *C. Meniscoides*, occurs in the mesozoic sandstone of Hör in Scania.

Claude, Jean (1619–87), a Fr. Protestant preacher and controversialist, was pastor at Charenton (1666–85), but, on the revocation of the Edict of Nantes by Louis XIV., was obliged to seek refuge in Holland. His works include: *Défense de la Réformation* (4 vols.), 1671; *Réponse à la Conférence de Bossuet*, 1681.

Claude Lorraine (1600–82), properly called Claude Gellée, a Fr. landscape painter, b. at Chamagne, in Lorraine. Being left an orphan at the age of twelve; he went to live with an elder brother, a wood-carver at Freiburg, and when still a boy travelled in Italy. At Rome he received employment in artists' studios, and was fortunate in coming under the notice of Agostino Tassi, the landscape painter, who gave him lessons. He may also have studied under Godfrey Waals at Naples, and finally settled in Rome in 1627. Not long after he attracted the attention of Cardinal Bentivoglio, who procured him an introduction to Pope Urban VIII., and a commission for two paintings: 'La Fête Villageoise,' and 'Un Port de Mer au Soleil Couchant,' now in the Louvre. C.'s pictures commanded high prices even during his lifetime (Clement IX. offered for 'Villa Madama' as many pieces of gold as would cover the canvas), and he was troubled with many forgers. Accordingly, he kept sketches of his pictures in a book, which he called his *Libri di Verità*. These were after-

wards engraved by Earlom; the originals belong to the Duke of Devonshire. C. excelled as a landscape painter. His colouring is very delicate and harmonious, and perhaps no other painter has had a more perfect knowledge of the lights and shades of the sky, changing continually from dawn till night. He was not successful in figure-drawing, in which he sometimes received help from fellow-artists, and is supposed to



CLAUDE LORRAINE

have once said that he sold the landscape and gave away the figures free. His landscapes number about 400, and are to be found in all the chief galleries of Europe. Consult Ruskin, *Modern Painters*, 1843-60; Mrs. Mark Pattison, *Claude Lorraine, sa Vie et ses Œuvres*, 1884; and Dullea, *Claude Gellée le Lorrain*, 1887.

Claudel, Paul-Louis Charles, b. in France, August 6, 1868, is at once a distinguished diplomat and one of the best-known poets of his country. After having graduated in law and secured his diploma from the School of Political Sciences, he began his diplomatic career by being made an attaché in the commercial department of the French Foreign Office in 1890. He then filled consular posts in New York, Boston, Shanghai, and other Chinese ports. In 1906 he became consul at Tien Tsin. From 1909 to 1916 he was Consul-General at Prague, Frankfort, Hamburg and Rome. He was minister to Brazil in 1916 and Denmark 1917. In 1921 he was made French Ambassador to Japan and several years

ago was given the important post of Ambassador to the U.S.A. But he is chiefly known to fame as a writer. He is considered one of the greatest, if not the greatest, Catholic writers of France. Owing to a certain mysticism in his dramas and poems, there are many who contest his claims. But he has his fervent admirers who constitute what the Fr. aptly call a 'literary chapel.' His literary ancestors, so to speak, are the Bible, Shakespeare, Æschylus and Rimbaud. His dramas take place in time rather than in space. There is always a religious basis, the drama being one of the salvation or destruction of the soul. Although he does often write in regular verse, many of his poems are unrhymed 'free verse' of which the quality is best tasted by reading aloud. His principal dramas are *Tête d'Or*, 1890; *La Jeune Fille Violaine*, 1901; *L'Otage*, 1918. His principal poetic works are *Cinq grandes Odes*, 1910; *Corona benignitatis anni Dei*, 1915; *Poèmes de Guerre*, 1922. He has also written prose books about the far East and has made translations from Æschylus and the English poet Coventry Patmore.

Claudius (**Claudius**) (*b.* A.D. 365), a Latin poet, *b.* at Alexandria in Egypt. His native tongue was (Gk., but he acquired a perfect command over Latin. In 395 he gained the favour of Stilicho, whom he eulogised in his *De Laudibus Stilichonis* (3 books). His other writings are: *Raptus Proserpine*, an epic poem; *Gigantomachia*, a fragment; *De Bello Gildonico*, and several occasional poems and panegyrics. After the war with Gildo, he was honoured by the Senate with a bronze statue in the forum of Trajan. His poems are vivid and written in a somewhat ornamental style. The best eds. are those of Birt (1892) and Koch (1895). See Hodgkin, *Claudius, the Last of the Roman Poets*, 1875; and J. W. Mackail, *Latin Literature*, 1895.

Claudius, Appius Claudius Cæcus (*fl.* 320 B.C.), a Rom. censor. He was elected to the censorship in 312, without having previously held the position of consul, and retained it for four years, though according to Rom. law no man might be censor for longer than eighteen months. He became blind, hence his name *Cæcus*. He built the Applan aqueduct, which brought water to Rome from Tusculum, and began the construction of the Via Appia. In the war with Pyrrhus, the terms of peace, drawn up by Cincæus, were rejected by the Senate largely because of Appius' spirited opposition to them.

Claudius, Appius Claudius Regillensis Sabinus (*fl.* 500 B.C.), a Sabine of the town of Regillum, where he was known as Attus Clausus. In the war between the Romans and Sabines in 504 B.C. he advocated peace. He settled in Rome, where he was adopted into the patrician rank. He became consul in 495, and the enmity he displayed towards the plebeians led to their secession to the Mons Sacer in the following year. The Sabines who accompanied him to Rome were given lands by the Anio, and were known as the tribe of Claudians.

Claudius, Marcus Aurelius, sur-named **Gothicus** (A.D. 268-270), a Rom. emperor. He was *b.* in Illyricum of a family of no note, but distinguished himself in military service and was made governor of his native province under Valerian. On the death of Galienus, the army proclaimed C. emperor. He defeated the Alemanni in the N. of Italy (268); and won a great victory over the Goths near Naissus, in Dardania, on which occasion he received his sur-name, Gothicus. He *d.* at Sirmium in Pannonia.

Claudius, Publius Claudius Pulcher, generally known as **Clodius** (*d.* 52 B.C.), was descended from an illustrious family, and was notorious for his licentiousness. In 62 he entered the house of Julius Caesar and profaned the mysteries of the Bona Dea, which were being celebrated by Pompeia, Caesar's wife, and other Rom. matrons. Clodius was brought to trial in the following year, but by corrupting the judges he obtained an acquittal. Cicero had given evidence at the trial, for which Clodius never forgave him. He descended from patrician rank, and was adopted into a plebeian family that he might become a tribune of the plebs. He was chosen tribune in 58, and used his influence to banish Cicero from Rome on the grounds that the latter had unlawfully punished the adherents of Catiline with death. In spite of Clodius, however, Cicero was recalled in the following year. In 56 Clodius became *ædile*, three years stood as a candidate for the prætorship, and was murdered in Jan. 52, on the Appian road, by the supporters of his enemy Milo.

Claudius (A.D. 41-54), a Rom. emperor, whose full name was **Tiberius Claudius Drusus Nero Germanicus**. He was the son of Drusus Nero, brother of the Emperor Tiberius and Antonia, and was *b.* at Lugdunum (Lyons) in 10 B.C. He was sickly and neglected as a child, and did not come into prominence until in 41, after the assassination of Caligula, he was proclaimed emperor by the troops. C. embellished Rome

by building an aqueduct and a harbour. In 43 he occupied Britain, to which he had previously sent two of his generals, Plautius and Vespasianus. In later life C. was ruled by his profligate wife, Messalina, who was executed for treason in 48. Two years later he married his niece, Agrippina, who prevailed on C. to adopt her son, Domitian, who assumed his step-father's name of Nero. It is generally supposed that C.'s death by poisoning was at her instigation. (Tacitus, *Annals*, xi. and xii.)

Claus, Emile (1849-1924), a Flemish painter. Popular for his studies of children. Examples of his works are in the galleries of many of the chief towns of Europe.

Claus, Santa, *see* CHRISTMAS.

Clausel, Bertrand (1772-1842), a Fr. soldier and marshal of France. He distinguished himself with the army in Naples, Dalmatia, and Portugal. In 1813 he was almost daily engaged with the English during the retreat of the French, before Wellington, into France. He was exiled in 1815, after he had opposed the troops of the Duchess of Angoulême during the 'Hundred Days', but returned in 1820. He was made a marshal by Louis Philippe and Governor of Algeria. He was commander-in-chief of the African army until the check sustained before Constant caused his recall in 1836.

Clausen, Sir George (*b.* 1852), Eng. painter, son of a decorative artist, was *b.* in London. Studied under Bouguereau and Robert Fleury. His picture entitled 'The Girl at the Gate' was bought by the trustees of the Chantrey Bequest for the nation, and may be seen in the Tate Gallery, London. His pictures render excellently the appearance of things in brilliant sunshine or under shelter; he agrees with the impressionists that light is the real subject of landscape art. Knighted 1927.

Clausewitz, Karl von (1780-1831), a celebrated Prussian general and writer on military affairs; *b.* June 1, 1780, at Burg. He served with Prussia from 1792—being engaged in the campaigns of the Rhine, 1793-94, and attending the Berlin school for young officers 1801-3, where he won the favour of Scharnhorst. In the campaign of 1806 he attended Prince Augustus as adjutant, was taken prisoner with him at the capitulation of Prenzlau. After his exchange, he was major on the general staff till 1812. In that year he entered the Russian service, in which he remained till 1814, having been Russian staff officer with Blücher's campaign of 1813. He returned into Prussian service. In all his

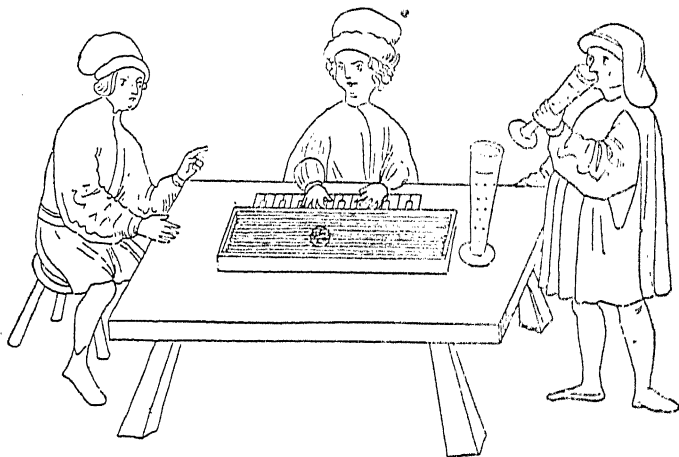
campaigns he distinguished himself by his intelligence and resource. He was made chief of a Prussian army corps in 1815, and in 1818 was made major-gen. and a director of army schools and an inspector of artillery. It is, however, from his writings on the theory of warfare that he is most famous. His best known work, his great book on war in three volumes, entitled *Vom Krieg*, was an epoch-making work in regard to the subjects of which it treats. He also wrote: *Der Feldzug von 1796 in Italien*; *Der Feldzug von 1815*; and *Ueber das Leben und den Charakter von Scharnhorst*. Much capital was made out

of the mining dist. for silver, lead, etc. Pop. 12,350.

Clavagella, or **Club-shell**, a lamellibranch typical of the family Clavagellidae, to which belongs also the well-known mollusc *Aspergillum*. They usually live in corals and rocks.

Claverhouse, see DUNDEE, VISCOUNT (JOHN GRAHAM).

Clavichord, a musical instrument which preceded the pianoforte. The strings were struck by brass pins, projecting from the ends of the keys, instead of by hammers. It is of the same type as the harpsichord and spinet, but these are plucked to set the strings in vibration.



ONE OF THE OLDEST REPRESENTATIONS OF A CLAVICHORD (C. 1410)

of his military theories during the Great War by the Allies' propagandists. He d. at Breslau of cholera, Nov. 16, 1831.

Clausius, Rudolf Jules Emmanuel (1822-88), a Ger. physician. The highest honour of the Royal Society, the Copley medal, was given to him in 1879. Thermodynamics was the science to which he gave special study, and in a lesser degree optics and electricity. He enunciated the theory, bearing his name, from which the well-known principle of Carnot arises. Among his numerous works may be mentioned: *On the Nature of Heat*, compared to Light and Sound, 1857; *Mechanical Theory of Heat*, 1864-67, etc.

Clausthal, a tn., Hanover, Prussia, among the Harz Mts., 25 m. N.E. of Göttingen. The centre of an impor-

Clavicle (from Lat. *clavis*, key), the bone commonly known as the collar-bone. It is connected at its inner end with the sternum or breastbone, and at its outer or scapular end with the shoulder-blade, together with which it forms the arm-socket. In animals it is shorter than in man, where it is a long bone shaped like an S and lying nearly horizontal. The bone is easily fractured or dislocated, but can be fairly easily returned to its place and placed together when the arm is supported. The merry-thought of a fowl is composed of the two clavicles.

Clavicornes (Lat. *clava*, club, *cornu*, horn), a name given by Latreille to those coleopterous insects in the section Pentameria which have their antennae thickened at the apex and thus resemble a club in shape. Bury-

ing-beetles and bacon-beetles belong to the group.

Clavie, Burning the. This is an anct. Scottish custom, which was once more widely distributed, but is now only kept up at Burghhead, a small fishing village on the Moray Firth. The custom takes its name from the Latin word *clavis*, a nail, as a bonfire is first made of split casks, one of which is then joined together again by large nails. The cask is then filled with tar, ignited, and carried round the village up to a headland where there are the remains of a Rom. altar; the assembled people scramble to get a piece of the C. with which to light their New Year's fire, and the charcoal of the C. is put up the chimneys, as it is supposed to prevent witches and evil spirits from descending. The date of this old custom is Jan. 12, the old New Year's Day.

Clavijero, Francisco Xavier (c. 1720-87), a Spanish-Mexican historian, *b.* at Vera Cruz, Mexico. Published in Italian *Storia Antica del Messico* (Cesena, 4 vols., 1780-81). It was trans. into Eng. by Cullen in 1787. C. also wrote *Storia della California* (Venice, 1789).

Clavijo y Fayardo, Don José (1730-1806), a Spanish publicist and naturalist, *b.* in the Canaries. He was challenged to a duel by Beaumarchais, whose sister he had jilted. He trans. Buffon's *Histoire Naturelle* in 1785-90, for which he was rewarded by being appointed director of the Natural History Museum in Madrid. Goethe drew largely from him for his *Clavijo*.

Clavius, Christopher (1537-1612), a Jesuit priest and mathematician, who was employed by Pope Gregory XIII. to superintend the reformation of the calendar. He had a very high reputation as a mathematical writer, and has even been called 'the Euclid of the sixteenth century,' but he had little original genius, and in consequence his works are not now held in such high esteem as formerly.

Claws, a term applied in zoology to various sharp appendages on the limbs of different animals, and frequently they are not homologous. The sharp nails of a vertebrate, the chelipeds of a lobster, and the chelicerae of a scorpion are all termed C. In vertebrates they are formed of hardened and thickened epidermal tissue, and in the cat they are retractile, *i.e.* they can be drawn in and thrust out at will.

Clay, a name applied indefinitely to the finer waste matter arising from the decomposition of rocks. C. is distinguished by its ductility and tenacity, and consists mainly of alumina

and silica with a small quantity of water. It is rarely found in a pure state except where rocks containing felspar have decomposed, and is used chiefly in the manufacture of bricks.

Clay, Alfred Borron (1831-68), Eng. painter. Received tuition in art from his father. He was articled to a solicitor, but gave up the law to study art. He attended the Royal Academy School. Among his works may be mentioned: 'The Return to Whitehall, May 29, 1860,' 1867, now at Liverpool; 'Imprisonment of Mary Queen of Scots at Lochleven Castle,' 1861, etc.

Clay, Cassius Marcellus (1810-1903), American politician, *b.* in Madison co. in Kentucky, and educated at Central College, Danville, and at Yale University. He was passionately opposed to slavery, and spent much of his energies opposing it; as a result of his sympathies he was forced to fight many duels and made many enemies. He was U.S.A. Minister to Russia 1861-69. In 1872 he was one of the organisers of the Liberal Republican revolt, and took a prominent part in politics until he retired. He *d.* at Whitehall, Ky.

Clay, Frederick (1839-89), an Eng. musical composer, was the son of James C., the famous authority on whist. He studied music at Paris under W. B. Mollie, and under Hauptmann at Leipzig. By far his best known work is the music to the song, *I'll sing thee songs of Araby*.

Clay, Henry (1777-1852), an American statesman and lawyer, *b.* in Virginia. Called to the Bar at an early age, after an indifferent education, he quickly distinguished himself as an advocate. In 1803 he, to fill unexpired term, was elected member of the Kentucky legislature, in 1806 and 1810, of the State Senate, and in 1811 of Congress, becoming Speaker of that body. His fiery speeches did much to bring about the war of 1812, and in 1814 he represented the U.S.A. at Ghent in the peace negotiations with Great Britain. He thrice unsuccessfully contested the presidency: first in 1824, when he stood against Adams, and again in 1832 against President Jackson, and 1844 against Polk. In 1825 Adams made him Foreign Secretary. After a period of retirement from politics he again entered the Senate (1831), and till his death retained all his old influence either there or as an adviser of the Whigs. In his foreign policy he warmly espoused the cause of the S. American republics in their struggle for independence. His objective was that the U.S.A. should recognise the republics as such, and accordingly,

after the rising in Spain in 1820, he moved in Congress an appropriation for sending Ministers to these republics. His resolution was defeated, but he followed it up by another in 1821, expressing the sympathy of the people of the U.S.A. with the struggle of the republics to throw off the Spanish yoke. This was passed, but not until after the Spanish treaty of 1819 respecting the boundaries of the Floridas and Texas and other territory had been ratified by Spain, when the resolution could hardly prejudice American interests. His name will ever be stamped on American economic history by reason of his part in the development of the 'American System' of protection to manufactured goods by tariffs, and the fostering of internal improvements by state grants or loans. C. came out as a protectionist during the nullification campaign of 1832-33 (see NULLIFICATION), when he astounded his followers by introducing a new Tariff Bill in which he proposed to reduce all existing duties to an *ad valorem* basis of 20 per cent., such duties as exceeded that rate to be gradually diminished over a period of ten years, when the rate should become uniform. The Bill, which was a mere compromise, was passed mainly to appease S. Carolina; but in his subsequent speeches it is clear C. was for a protectionist policy on general grounds of political expediency, viz. that the European nations had adopted the system, that it was necessary to create a home market for agriculture so as to keep pace with the rapid increase in American power of production; and that a compact system of home manufactures made for union among the states. He advocated a convertible paper currency, demanded State assistance in the development of rail and water communications, and effected a compromise between the slave states and the Abolitionists. (See on this COMPROMISE MEASURES OF 1850.) See *Works of Henry Clay*, edited by C. Colton (New York), 1863.

Clay Cross, urban dist. of Derbyshire, England. The centre of a coal and iron dist. of some magnitude, it is situated $5\frac{1}{2}$ m. S.E. of Chesterfield. Pop. 8686.

Clay Ironstone, the name given to the ore from which iron is smelted, in particular the carbonate (siderite) which occurs mixed with clay. In common with Blackband Ironstone, the ore is found chiefly in beds composed of small balls or nodules, and fossils are frequently met with imbedded in the plastic substance. Before smelting, C. I. is usually sub-

jected to roasting for a period of a month or so—the ore being broken up for this purpose—and during this time it loses from one-quarter to one-third of its weight. The method of smelting adopted is, in most cases, that of the blast furnace. Analysis has demonstrated that C. I. contains a large number of impurities, but the two chief constituents are ferrous oxide (about 40 per cent.) and carbonic acid (about 25 per cent.). The total metallic iron present averages 30 per cent. The condition in which this is present (ferrie or ferrous) depends on the extent to which the processes of oxidation and hydration have been carried by the atmosphere. Ironstone in some form or other is found in practically all the coalfields of Great Britain, generally in convenient proximity to the limestone, which then forms its fuel. The earthy nature of the ore renders the addition of calcareous fuel necessary before it can be properly smelted, and the convenient distribution of ironstone and limestone referred to has formed a big factor in the industrial development of Great Britain.

Claymore (Gaelic *claidheamh mor*, great sword), the two-edged broadsword of the anet. Scottish Highlanders, celebrated in many a song and ballad. It is also the name inexactly given to the basket-hilted broadsword introduced in the sixteenth century, which was frequently single-edged. It was not usual for the C. to be wielded with both hands. Cs. are still carried by the officers of Scottish regiments in the British army.

Clay Soils derive their specific character from the hydrated silicate of alumina ($Al_2O_3 \cdot 2SiO_2 \cdot 2H_2O$), which is found in them, both in a state of mixture and in chemical combination. China clay or kaolin is a very pure form of this silicate. Although some soils are found to contain upwards of 30 per cent. of this alumina, and hardly any soil is quite free from it, the amount rarely exceeds 2 per cent. When farmers speak of a 'clay soil,' they mean an intractable earth, which, when dry, becomes baked as hard as a brick, and which in its wet state is so sticky as to resist all efforts to work it with ordinary agricultural implements. A pure clay soil would be quite unfertile, but its feldspars are almost always composed partly of lime, potash, and soda, which render the soil amenable to cultivation. As they hold water, are cold and fairly impervious to air, clay soils are unsuitable for building purposes.

Clays, **Paul Jeon** (1819-1900), a Belgian painter of the school of Willems and Leys. Among his best

known pictures are 'Calm in Zealand,' 'The Open North Sea,' 'A Squall on the Scheldt,' and 'Dutch Boats in the Flushing Roads.'

Clayton, urban dist. in the W. Riding of Yorkshire, England, situated $3\frac{1}{2}$ m. to the W. of Bradford. Pop. 5043.

Clayton, John Middleton (1796-1856), an American politician, was b. at Dagsborough, in Sussex co., Delaware. He was engaged in politics from a comparatively early age, and sat in U.S.A. Senate 1829-37, 1845-49, and again from 1851 till his death. His is chiefly known by his negotiation of the Clayton-Bulwer Treaty, when he was Secretary of State in 1850. He d. at Dover in Delaware.

Clayton, Robert (1695-1758), an Irish bishop, whose motion in 1756 in the Irish House of Lords, for the expunging of the Athanasian and Nicæan Creeds from the Liturgy gave great offence, and the feeling against him was increased by his publication of *A Vindication of the Old and New Testament* in 1757. C. was threatened with a legal prosecution, but d. before the proceedings opened.

Clayton-Bulwer Treaty, between Great Britain and the U.S.A., was so called from the names of the statesmen representing the respective countries. The U.S.A. were represented by J. M. Clayton, Great Britain by Sir Henry Bulwer. By the terms of the treaty both parties pledged themselves to respect the neutrality of the proposed ship canal across Central America. Between 1880 and 1884 the Gov. of the U.S.A. put forward several reasons why it might, when it thought fit, withdraw from its contract. These reasons, it may be stated, could not be reconciled with any system of law, national or international. The C.-B. T., which was concluded at Washington on April 19, and ratified on July 4, 1850, was abrogated in 1902 by the Hay-Pauncefote Treaty, which embraced the neutrality rule for the Panama Canal.

Clayton-le-Moors, a par. and tn. of Lancashire, England, in the div. of Accrington, from which it is distant 1½ m. It is situated on the Leeds and Liverpool canal, and coal-mining is carried on. Pop. 8579.

Clazomenæ (the modern Kelisman), an anct. tn. of Ionia, and a member of the Ionian Confederation of Twelve Cities, or *Δωδεκαπολὶς*. The inhabitants, alarmed by the Persian invasions, removed to one of the small is. of the bay from an isthmus which connected the mainland to a peninsula. Alexander the Great built a pier to the mainland, and the remains are still visible. It was the bp. of

Anaxagoras, and is famous for the terra-cotta sarcophagi found there.

Cleanthes (c. 300-220 B.C.), a Stoic philosopher, the successor of Zeno of Citium, was b. at Assos, in the Troad. He attended the lectures of Zeno for nineteen years, and, in order to obtain money to pay his class fee, he used to draw water for the gardens about Athens and to grind corn in the night. On the death of his teacher, C. became the recognised head of the Stoic school, and was himself succeeded by his pupil, Chrysippus. He wrote many treatises, but the only work of his that is extant is a beautiful *Hymn to Zeus*, written in Gk. hexameters. He d. of voluntary starvation.

Clear Cape, the most southerly point of Ireland. It is the name given to the south-westerly extremity of Clear Is.; there is a lighthouse and telegraph station on the cape.

Clear Island, a small is. with an area of only 1504 ac. and a pop. of 565. The chief occupation of the inhabs. is fishing.

Clearchus, a Spartan general of the fifth century B.C. After commanding a portion of the fleet in the Battle of Cyzicus, he was sent as envoy to Byzantium, but so infuriated the people by his despotism that the inhabitants opened the gates to Alcibiades. He assisted the young King Cyrus against Artaxerxes. He received the command-in-chief of the Gks. after the Battle of Cunaxa, and directed the retreat of the 'Ten Thousand,' until he was led into an ambush by Tissaphernes, and delivered to the Persian king, who put him to death in 401 B.C.

Clearfield, co. seat of C. co., Pennsylvania, U.S.A. It is situated on the W. branch of the Susquehanna R., at a distance of 92 m. to the E.N.E. of Pittsburg. Has foundries, and tanning, tile and drain pipe works. Pop. 9221.

Clearing-houses, institutions established by bankers for the adjustment of their mutual claims for cheques and bills, by exchanging them and settling the balances. The London bankers' C. was established by the principal bankers in London in the year 1770. In the U.S.A., where the system was only introduced in 1853, the number of Cs. and the extent of their business already exceeded that of England. The New York C. is the largest in the country. It embraces forty-eight banks and fifteen trust companies. The mode of business differs from that of the London C. In the latter there are two clearings, the balance being struck only at the afternoon clearing. Again, there are several operations involved:

the clerks representing the different banks first go to the C. for the purpose of getting 'in' clearings entered (i.e. drafts against their banks); they then return to their offices so that the 'out-books' there may be cast and sent down to the C. to be checked against the 'in-books' of other banks. But in the New York C. the whole operation of clearing occupies only about one hour. The different clerks with their attendant messengers appear at the house at 10 a.m., the former taking their places at their appointed desks; the latter then proceed seriatim to all the clerks for whom they have drafts in sealed envelopes, and these clerks then enter up the amounts indicated on the envelope. The clerks then state the amounts to the managers and the balance due is settled, the debtor banks paying the net amount against them at 1.30 p.m. to the managers of the C. in current coin, legal-tender notes, or deposit certificates, and the managers in their turn pay over to the creditor banks. The C. is at 77 Cedar Street, Manhattan Borough.

Clearwater, a city on the W. coast of Florida, U.S.A., 30 m. W. of Tampa, a winter resort with orchards and market gardens and fisheries. Pop. (1900) 343; (1920) 2427; (1930) with extended boundaries, 7607.

Cleator Moor, an urban dist. and tn. situated on the R. Eden, 4½ m. S.E. of Whitehaven. There are extensive coal mines and furnaces for the manufacture of hematite iron, also engineering works and brass foundries. From the moor itself large quantities of very good iron ore are obtained. Pop. (1911) 8301.

Cleavage, the property possessed by rocks and crystals by which the forces of cohesion submit to a wedging strain more readily in some directions than in others. A homogeneous mass is broken into irregular fragments, but crystals, the molecules of which have been deposited with a certain orderly arrangement, tend to split into smooth-faced fragments. The direction in which the splitting occurs is always parallel to a possible face of the crystal, and is called a C. plane. The property is independent of hardness, as the hardest of crystals, diamond, is easily cleavable, while minerals of intermediate hardness are sometimes cleavable with difficulty, e.g. quartz and garnet; again, gypsum, a soft mineral, has a good C. The most perfect of all Cs. is possessed by mica, which can be divided and subdivided into laminae apparently without limit. In estimating the hardness of a mineral, the direction of C. should be taken into account, as a crystal shows less resist-

ance to abrasion in a direction parallel to the C. The C. of non-crystalline rocks is often due to quite different causes. Rocks composed of coarse particles are either not cleavable or cleave in a direction parallel to the bedding planes. Fine-grained rocks, on the other hand, often exhibit a phenomenon known as slaty C. This occurs in a direction usually at a high angle to the bedding plane, and at right angles to some folding stress which the rock has at some time sustained. The cause is somewhat obscure, but there would naturally be a tendency for the particles to flatten themselves in a direction at right angles to the greatest stress. Again, slate contains plates or crystals of mica; these developed while the rock was in a plastic state and would tend to grow at the edges where the pressure was less intense, thus forming laminae whose direction would be parallel to the line of C. The property of C. in slate is of economic importance, as through it the rock may be readily split into plates suitable for roofing, etc.

Cleburne, a city of Texas state in the U.S.A., the cap. of Johnson co., situated 55 m. S.W. of Dallas. Pop. 11,539.

Cleckheaton, a par. and tn. of the W. Riding of Yorkshire, situated 5½ m. S.E. of Bradford. The town has a very fine Town Hall, and industries of textile fabric manufacture and machine-making; there are collieries in the dist. The parish has an area of 1756 ac. Pop. 12,537.

Clee Hills, a range of hills situated in S. Shropshire, which rise here and there into fairly high peaks, of which the chief are Brown Clee Hill (1792 ft.) and Titterstone Clee Hill (1750 ft.). There is some coal in the dist., and a noted hard rock called flu stone is quarried in large quantities.

Cleethorpes, a watering-place of Lincolnshire, England, situated 2½ m. S. of Great Grimsby, on a flat, sandy beach at the mouth of the Humber, here over 7 m. wide. There is a sea wall of nearly a mile in length, and C. is connected with Great Grimsby by train. The town is noted for its oysters. Pop. 28,155.

Clef, in music, a character placed at the beginning of the staff to determine the pitch and name of the notes. There are three Cs.: the C₁, or treble C., placed on the second line; the C₂ clef, placed on the fourth line; and the C₃, or bass C., placed on the fourth line. The C₂ clef is now only used for tenor and alto staves, though formerly it was of four kinds. As the alto staff it may also be placed on the third line.

Cleft Palate, a congenital failure of

development in the roof of the mouth, resulting in a fissure which may extend along the middle line of the hard palate and soft palate as far as the uvula. The reason for such lack of development is not known; it is often hereditary and frequently associated with hare-lip, where the upper lip is divided on one side, or on both sides, of the middle line. The condition, whether of C. P., or hare-lip, or both combined, is one dangerous to the welfare of the child, as swallowing is rendered difficult and sucking is rendered impossible, or results in the return of the milk through the nasal passages. In later years an additional disability is sustained through the impossibility of rendering some of the elements of speech, and the senses of taste, smell, and hearing may be considerably impaired. These considerations make an early operation advisable, and if the child is able to undergo a surgical operation, the matter should be attended to when it is a few weeks old. The plan adopted is to bring the edges of the soft palate together and to thrust forward strips of the mucous membrane and fibrous tissue covering the hard palate to meet at the middle line, where they are sewn up. If hare-lip exists, the gap should be closed by surgical operation as soon as possible. Where there is no C. P., the operation may be undertaken a week after birth, but is necessarily postponed for some months after the palate has to be operated on. Formerly, artificial palates were used to cover the fissure, but with modern surgical methods this is rendered unnecessary.

Clegg, Horse-fly, Breeze-fly, and Gad-fly are various names given to members of the family of dipterous insects, Tabanidæ. They are large, stout flies, with a very long proboscis, and the males have enormous eyes. In the genus *Tabanus*, common in Britain, the species are often one inch in length, and in the *Panponia* the proboscis of the female is about four times the length of its body.

Cleisthenes (*fl.* 508 B.C.), an Athenian reformer, the son of Megacles and Agarista, and grandson of Cleisthenes, the tyrant of Sicyon. He was the leader of the Alcmeonidæ, and after the expulsion of the Peisistratidæ (510 B.C.), headed the democratic party. He was opposed by the whole party of nobles, and in particular by Hippias and Isagoras, the former of whom he expelled in accordance with the Delphic oracle. C.'s chief reforms were: (1) The abolition of the four anct. tribes and the substitution of ten new ones. (2) The introduction of ostracism, by which a party leader might be got rid

of without resorting to bloodshed. (3) The re-establishment of election by lot. Isagoras called in the help of the Spartans, and for a time C. was obliged to withdraw from Athens, but Isagoras was ultimately defeated, and C. was recalled and his laws made good.

Cleland, a small tn. of Lanarkshire, Scotland, on S. Calder Water, situated 3. m. N.E. of Motherwell. There are collieries and iron works. Pop. (including the small suburb Omoa), 4911.

Cleland, John (*b.* 1835), an Eng. doctor, Regius Professor of Anatomy at the University of Glasgow till 1909. Among his works are a volume of essays entitled, *Evolution, Expression, and Sensation, Cell Life and Pathology*, 1831, and a volume of poems, *Scala Naturæ and other Poems*, 1887.

Cleland, William (1661-89), a Scottish soldier and poet, was brought up on the estate of the Marquis of Douglas, to whom his father was gamekeeper. He joined the Covenanters, with whom he fought at Drumlog and Bothwell Bridge. Later, he was agent for William of Orange, and was made lieutenant-colonel of the Cameronian regiment which defended Dunkeld; he was there killed. His poems are written in Eng., with a plentiful sprinkling of Scottish words, but have no great literary merit.

Clematis, a cosmopolitan genus of Ranunculaceæ, consists largely of shrubs which have opposite leaves and climb by means of their petioles. *C. vitalba*, the traveller's joy or old man's beard, runs over the hedges in many parts of Britain. The greenish-white flowers are in clusters and later appear as heaps of feather-tailed silky tufts. Other species are, however, better known in cultivation, *e.g.* *C. flammula*, a fragrant plant with panicles of small white flowers; *C. cirrhosa*, *C. crispa*, and *C. florida*, all remarkable for the large size of their greenish white flowers; *C. viticella*, an elegant and ornamental climber, which has purple or pink bells hanging gracefully from the festooning branches.

Clemenceau, Georges Benjamin (1841-1929), Fr. statesman and journalist and the dominating figure in France during the Great War, *b.* at Mouilleron-en-Pareds, his father being an uncompromising Jacobin of the Vendée from whom C. inherited his republican principles and his intransigence. His forbears having been in the medical profession for the previous three hundred years, C. studied medicine, first at Nantes and then in Paris, where he took his degree. At the university he was a

firebrand republican, remarkable for his polemics against Buonapartism. He was imprisoned for two months for celebrating the February revolution in the Bastille square. Went to U.S.A. to study American sociological conditions, maintaining himself by teaching in a young ladies' school in Connecticut, whence he brought back to France his wife, Miss Mary Plummer, one of his pupils. Set up as a physician in Montmartre and became prominent in the revolution of 1870 at which period he was Mayor of Montmartre and a deputy for Paris. He was vehemently



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attacked by both the Paris revolutionaries and the National Assembly in connection with the shooting, by the communists, of two generals whom Thiers had despatched to restore order in Montmartre. In 1876 as the representative of Paris in the Deputies, his biting eloquence marked him out as the Radical spokesman. The revolutionaries had become bourgeois, but C. would have no compromise. Democratic to the core, he wanted political reconstruction, and thenceforth he was essentially the destroying force in Fr. politics—overthrowing with mordant wit and unflagging

energy one gov. after another. He brought about the fall of the Gambetta Cabinet in 1882, that of Ferry in 1885, and that of Brisson in 1886. Another victim was Boulanger during the Panama scandals, when C. was animadverted upon as the great corrupter; but when 'proofs' were eventually forthcoming they were definitely established to be crude forgeries by one Norton, who committed suicide in goal. In 1893, he took to journalism, collaborating in the editing of the *Echo de Paris*, *Figaro*, and other journals, and starting his own paper *La Justice*. He was chief editor of *Aurore* in 1897 during the most famous period of his journalistic activities when he headed the campaign in favour of Dreyfus (*q.v.*). In the Radical struggle against Rome he succeeded Sarrien as Premier, but in 1909, after three years of office, his Gov. was defeated after a violent debate in which he accused Delcassé of humiliating France in the Algeiras affair (*q.v.*). But his Gov. had been very successful; he had ruled labour with firmness, as was proved during the strike of miners in the Pas-de-Calais in 1906, when he showed the iron hand by employing the military. It is true that he thereby alienated the sympathy of the Socialist party, but he had emerged as the strong man of France, an emergence which he was destined to repeat in the Great War with most dramatic effect. He had, besides, greatly enhanced Fr. prestige abroad, especially by his firm attitude towards Germany. His desire to redress the wrong done by Germany against Alsace-Lorraine was life-long. His foreign policy was in line with the traditional Fr. view that their country's destiny was in the chancelleries of Europe and, consistently with this, he was an opponent of Fr. colonial expansion in rivalry with Britain. But if, during all his early and middle political career, he was the rebellious spirit and the iconoclast in Fr. politics, he flamed forth in the Great War as a single-minded patriot, whose fulminations in *L'Homme Libre* breathed a noble love of country, and throughout the war he showed a truly extraordinary energy, both physical and mental, and, as has been well said, he became long before his death almost a legendary figure. Early in the Great War he vented his burning anger against the administration for the state of the Army and the inadequacy of the medical service; and the failure of each Gov. to grapple with the problems of the war goaded him to such a pitch of fury that both as editor of *L'Homme Libre* and as a

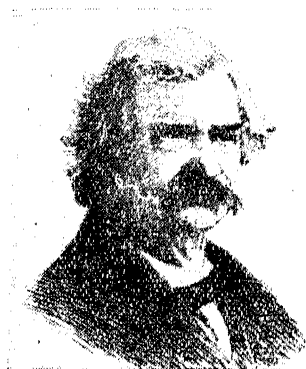
Senator he was the veritable scourge of the Gov. The strength of his position lay partly in the negative fact that he was no petty intriguer manoeuvring for place or even for power. Defeatism was in the political air of France, and after the Salonica failure of Sarrail, the Poinlevé Cabinet was driven from office and C., almost in spite of himself, was in undisputed power. Previously, his paper, *L'Homme Libre*, had been suppressed, his answer to which abuse of emergency powers was to produce a new paper ironically entitled *L'Homme Enchaîné*! But the time was ripe for a man of resolution. France was weary of intrigue. The names of Bolo, Malvy, Caillaux, and Charles Humbert had created uneasiness in Allied countries, and tendencies to mutiny in the Army made it plain that the iron hand was wanted once more. Hence the formation of the 'Victory Cabinet' in 1917 under C.'s celebrated slogan 'Je combattrai devant Paris. Je combattrai à Paris. Je combattrai derrière Paris.' In March 1918, during the dark days of the final Ger. offensive, he supported Lord Milner in the decision to appoint Marshal Foch as generalissimo of the Allied Armies. His endurance showed no abatement even after the War, for he presided and directed the proceedings at the Peace Conference in Paris in 1919, where he was tenacious for Fr. security. In this he was opposed to President Wilson's self-determinist views, and more than once waxed bitterly ironic over the latter's famous 'fourteen points.' Yet he forbore to carry his policy *à outrance*, and for the most part his keen sense of altered political values kept him in general agreement with Mr. Lloyd George. This equipoise was especially fruitful in the decision of the 'Big Four' (Clemenceau, Wilson, Lloyd George, and Orlando) to foster the growth of new or enlarged States in Central and E. Europe, though in this policy C., more than the other three, was actuated chiefly by the desire to create 'buffer' states against Germany, whereas President Wilson and Mr. Lloyd George were concerned rather with removing causes of friction by the application of the principle of self-determination. C. persuaded both President Wilson and Mr. Lloyd George to sign treaties binding their nations to aid France against unprovoked aggression, but the treaties lapsed through the refusal of the American Senate to ratify. In conveying to the Ger. representatives the terms of the Treaty, which he did in a few curt words, C. permitted no

oral discussion. His subsequent reply to the written Ger. observations was a brilliant document, the purport of which was that no peace could be founded on a condonation of the war which Germany had brought about and that reparation by Germany was a *sine qua non* of justice. During the Conference in Feb. 1919 he was shot at and wounded by a young anarchist, but with a Stoic coolness he was soon at work again, delighting his colleagues with his wit and amazing energy. In 1920, after entering the political sphere again, he withdrew his candidature, recognising that his work was done, and spent some time in touring Egypt and India. His remaining years were passed at his quiet seaside house La Tranche, near Ste. Hermine in the Vendée, and in Paris in contributing articles and in writing a small book on Demosthenes. In his last illness he rallied more than once, and it was as if the 'Tiger,' to give him his universal sobriquet, would defeat even death. It has been well said of him that, like Foch, he fired the soul of France and steelled her will. His published works include also *De la Génération des Éléments Anatomiques*; *La Mêlée Sociale*, 1894; *Le Grand Pan*, 1895; *Le Voile du Bonheur*; *Les Plus Forts*, 1898; *Les Requins* (a play); *Grandeurs et Misères d'une Victoire* (Memoirs), 1929; *Au Soir de la Pensée* (on philosophy and morals), 1929. (Engl. transl. *In the Evening of my Thought*.) See also Clemenceau: *The Events of his Life as told by Himself to his former secretary, Jean Marlet*; transl. by M. Waldman, 1930; and *The Tiger*: Georges Clemenceau 1841-1929, by George Adam, 1930.

Clemence-Isaure, a Fr. poetess, b. near Toulouse towards the early part of the fifteenth century. Guillaume Benoit, a jurist of the fifteenth century ascribes to her the *Jeux Floraux*, held at Toulouse on May 3. There is a statue of her at Toulouse and another in the Jardin du Luxembourg, Paris.

Clemens, Samuel Langhorne (1835-1910), an American novelist and humorist, better known by his pen-name of 'Mark Twain,' was b. at Florida, Missouri, U.S.A., and after an ordinary school education in his native town, learnt the trade of a printer, at which he worked at St. Louis, New York, and other towns. In 1851 he gave up this trade and became a steamboat pilot on the Mississippi, and it was from a cry used in taking soundings here that his pseudonym was taken. On the outbreak of the Civil War he gave up this position and went to Nevada, becoming

editor of the *Enterprise* at Virginia City. He also tried mining, journalism, and lecturing. In 1867, the *Jumping Frog, etc.*, proved a sufficient success to enable him to make a tour through Europe, the account of which in *Innocents Abroad*, 1869, firmly established his reputation as a humorist. From this time till 1871 he edited the *Buffalo Express*. In 1872 appeared *Roughing It*, where he made use of his experiences in the Far West. Next year came *The Gilded Age*, written in collaboration with Mr. C. W. Warner. Then appeared *Tom Sawyer*, 1876; *A Tramp Abroad*, 1880; *The Prince and the Pauper*, 1882; *Life on the Mississippi*, 1883; *The Adventures of Huckleberry Finn*, 1885; *The Tragedy of Pudd'nhead Wilson*, 1894; *Recollections of Joan*



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of Arc, 1896; *More Tramps Abroad*, 1897; *Eve's Diary*, 1906, and many others. In 1884 he had joined the publishing firm of Charles L. Webster and Co., and the failure of this concern in 1893 led to his making a lecture tour round the world which established his fortune once more. From this time till after 1900 he lived principally in Europe. His humour is spontaneous and free, and is varied by amusing character-sketches, grotesquely exaggerated. The picaresque novel is his favourite element. See CHRISTIAN SCIENCE.

Clemens, Titus Flavius Alexandrinus (d. about A.D. 220), a distinguished Christian writer. He is believed to have been b. at Athens, but spent most of his life in Alexandria, where he studied under Pantenus. During the persecutions of Severus, he and his master were obliged to

take refuge in Palestine (c. 202-206), and in 211 he succeeded Pantenus as master of the school of Alexandria. The extant works of C. are: *Λόγος Προτρεπτικός πρὸς Ἕλληνας*; *Παιδαγωγικός*; *Στρωματικός*; and *Τὸς ὁ σωζόμενος Πλαίσιας*. His works have been frequently published, the best being one with a Latin translation by J. Potter (1715).

Clement, the name of fourteen popes:—

Clement I., commonly known as C. of Rome (fl. A.D. 90). He is thought by some to be identical with C., the fellow-worker of Paul (see Phil. iv. 3). He succeeded Anacletus as Bishop of Rome. He was the author of the *First Epistle of Clement*, written to the church at Corinth about A.D. 95. This early document is of great value to the student of primitive Church history. A fragment of it was found at the end of the *Codex Alexandrinus*, and was pub. in 1633 by Patrick Junius. A complete MS. was found at Constantinople, and pub. in 1875. Several other documents have, with little or no authority, been attributed to this C. Consult Lightfoot, *The Apostolic Fathers: Saint Clement of Rome*, 1890; Gregg, *The Epistle of Saint Clement*, 1899.

Clement II. (1016-47), formerly Suidger, the Chancellor of Emperor Henry III., who created him Pope.

Clement III. (1187-91), Paulino Sculari, Cardinal-Bishop of Palestrina; urged the necessity of the Third Crusade upon Henry II. of England and Philip Augustus.

Clement IV. (1265-68), Guy Foulquois le Gros, of a noble Provençal family, began life as a soldier, but later became Cardinal-Bishop of Sabina. He supported the claim of Charles of Anjou in Sicily, and was a friend to Roger Bacon.

Clement V. (1305-14), Bertrand de Goth, was unduly influenced by Philip the Fair, at whose suggestion he suppressed the Order of Templars. He removed the papal seat to Avignon. Consult Rablins, *Clement V. et Philippe le Bel* (1858).

Clement VI. (1342-52), Pierre Roger, a Frenchman, Archbishop of Rouen. He took the part of Queen Joanna of Naples against her brother-in-law, Louis of Hungary, who had invaded her dominions to avenge the murder of her husband.

Clement VII. (1523-34), Giulio de' Medici. After the Battle of Pavia (1525) he joined the Italian cities in a Holy Alliance with France against the Emperor Charles V., but in 1527 Rome was sacked by the Imperial troops, and he was kept prisoner in the castle of Sant' Angelo for six months. He refused to sanction Henry VIII.'s divorce from Catherine,

which fact brought about the Reformation in England.

Clement VIII. (1592-1605), Ippolito Alderandini, received the public profession of Catholicism made by Henry IV. of France, whom he reconciled with his subjects. He annexed the duchy of Ferrara to the papal states.

Clement IX. (1667-69), Giulio Rospigliosi, brought about the peace of Aix-la-Chapelle in 1668 between France and Spain; and for a while conciliated the Jansenists and Jesuits in France.

Clement X. (1670-76), Emilio Altieri, was eighty years of age at the time of his election, and left the administration of affairs to his adopted nephew, Cardinal Paluzzo Paluzzi.

Clement XI. (1700-21), Gian Francesco Albani, had trouble with the Jansenists in France, against whom he issued two bulls, *Vineam Domini Sabaoth* (1705) and *Unigenitus* (1713).

Clement XII. (1730-40), Lorenzo Corsini, condemned the Freemasons (1738), and restored the republic of San Marino to its liberties (1740).

Clement XIII. (1758-69), Carlo Rezzonico, endeavoured with little success, to support the Jesuit missionaries, but before his death they were expelled from France, Spain, and Portugal.

Clement XIV. (1769-74), Giovanni Vincenzo Antonio Ganganelli succeeded C. XIII. in troublous times. After vain negotiations, he issued his famous brief, *Dominus ac Redemptor noster*, suppressing the Jesuits (1773). He was a liberal-minded statesman and a patron of art. He founded the Clementine Museum in the Vatican. Consult Ravignan, *Clément XIII. et Clément XIV.* (1854); and Uschner, *Clement XIV.* (1867).

Clément, Charles (1821-87), a Fr. man of letters, who may be regarded as a worthy successor to Gustave Planche. The *Revue des Deux Mondes* and the *Journal des Débats* both counted him among their best contributors, whilst he left a notable series of literary and artistic monographs, including: *Michael Angelo*; *Raphael*, 1861; *Studies of the Fine Arts in France*, 1865; *Géricault*, 1868; *Prud'hon*, 1872; and *Gleyre*, 1877.

Clément, (Frédéric-Jean-) Edmond (1867-1928), a famous modern Fr. operatic comedian, b. in Paris. Educ. at Institution Notre Dame de Chartres. Made *début* at Opéra Comique in 1889 in *Mireille*, and, except for tours, remained with that house for life. Sang also at the Metropolitan Opera House, New York, and with the Boston Opera Com-

pany. Appeared in *Benvenuto, Les Folies amoureuses, Phryné, L'Attaque du Moulin, Le Filibustier, Falstaff, La Vivandière, Xavière, L'Amour à la Bastille, L'Île du Réve, Beaucoup de Bruit pour rien, Le Juif polonais, La Petite Maison*. He frequently appeared at the Théâtre de la Monnaie, Brussels. Died at Nice.

Clément, Jacques (1564-89), a Dominican friar, notorious as the murderer of Henry III. of France. He was himself killed by Henry's attendants, and was regarded as a martyr.

Clémentel, Étienne, Fr. statesman, was b. at Clermont-Ferrand in 1864, and educ. at the college of Riom. He became deputy for his native Department of Puy-de-Dôme in 1900, and was Minister for the Colonies under the premiership of Pierre-Maurice Rouvier, 1905-6. He was Minister for Agriculture in the Barthou Cabinet, 1913; Minister of Finance in the Ribot Cabinet, 1914; Minister of Commerce and National Economy in the various Ministries in the War and post-war period of high tension, 1916-20. In 1920 he was elected senator for Puy-de-Dôme. At the Armistice, he became first President of the International Chamber of Commerce. He was again Minister of Finance under Herriot, 1924. He is a member of the Democratic Left. Works:—*L'Âme celtique; Étude sur Michelet; Un Drame économique; La Crise viticole récente*, 1914.

Clementi, Muzio (1752-1832), a pianist and composer, b. at Rome, where he studied as a child under Cordicelli, and at the age of nine was appointed to a post as organist. He afterwards studied under Santarelli and Carpani, and by the age of fourteen had composed several contrapuntal works. He attracted the attention of an Englishman, Peter Beckford, who brought him to England, where he was enthusiastically received (1770). He conducted the Royal Italian Opera (1777-80); he then made a continental tour, and while at Vienna had a piano combat with Mozart, the victory being left undecided. On his return to England he founded a business as pianofortemaker and musical publisher in London. In 1813 he assisted in forming the philharmonic concerts. C. left about a hundred sonatas, symphonies, and overtures, and was regarded as the father of the pianoforte school. His best known pieces are the Op. 2 (1770) and *Gradus ad Parnassum* (1817). He is buried in the cloisters of Westminster Abbey.

Cleobulus of Lindus in Rhodes, one of the Seven Sages; he lived about

560 B.C. He was distinguished for his strength, handsome person, and famous riddles.

Cleombrotus I. (380-371 B.C.), King of Sparta, brother and successor of Agesipolis. He waged war against the Thebans; in 371 B.C. he led the Spartans at Leuctra against the Thebans under Epaminondas, and was defeated and mortally wounded.

Cleombrotus II. (c. 243-240 B.C.), thirtieth King of Sparta. On the expulsion of his father-in-law, Leonidas II., he was elected king by the party of Agis IV. On his return, three years later, C. was deposed and banished to Tegea.

Cleomedes, a Gk. mathematician, who probably flourished in the second century A.D. He wrote, in two books, a treatise *On the Circular Theory of the Heavenly Bodies*. It sets forth the Stoic system of the universe, and gives various arguments in proof of the rotundity of the earth. Edited by Bake (1820) and Ziegler (1891).

Cleomenes I. (520-491 B.C.), King of Sparta, son of Anaxandrides. In 510 B.C. he took part in the expulsion of Hippis, the last of the Pisistratidae, from Athens. His assistance was called for by Isagoras and the aristocratic party in Athens against Cleisthenes, and he helped in the expulsion of 700 families. During the war with Argos he was successful in defeating the Argives near Tiryns.

Cleomenes II. (370-309 B.C.), King of Sparta, succeeded his brother, Agesipolis III.

Cleomenes III. (c. 235-220 B.C.), King of Sparta, son of Leonidas II., last of the Agidae. He endeavoured to restore the ant. institutions of Lycurgus and strongly opposed Aratus and the Achaean League, by forming an alliance with Ptolemy, King of Egypt. He was at first successful in his campaigns against the Achæans, but in 221 he was himself defeated at Sellasia in Laconia.

Cleon (d. 422 B.C.), an Athenian democrat, the son of Cleonetus. He was originally a tanner, and came forward into public life as an opponent of Pericles. During the Peloponnesian War, C. set himself up as the champion of the people and the leader of the peace party (428-422). In 427 he advocated in the assembly that the Mytilenian prisoners, sent to Athens by Paches, should be put to death, and in 424 he won great glory by his capture of the Spartans on the is. of Sphacteria. Much elated by his success, C. accepted the command of the Athenian army to oppose Brasidas in Macedonia and Thrace, but was defeated, and fell in battle under the walls of Amphipolis. C. is represented by Thucydides and Aris-

tophanes as a demagogue of the lowest type, mean, ignorant, cowardly, self-seeking, and unscrupulous, pandering to the mob to obtain his own selfish ends. He is made to figure among the *dramatis personæ* in Aristophanes' comedy, *The Knights*, but the poet was obliged to take the part himself as he could find no actor bold enough to personate C. It should, however, be remembered that both Thucydides and Aristophanes had a grudge against him, the former having been banished at his instance, and the latter's comedy, *The Babylonians*, was brought before the notice of the Senate by C. as an unpatriotic play and harmful to the country in time of war.

Cleonus, a genus of Curculionidae, or weevils, consists of between one and two hundred species of beetles. They have elongated and convex bodies, and both larvæ and perfect insects are vegetarian, feeding chiefly on coniferous trees, such as the larch and pine.

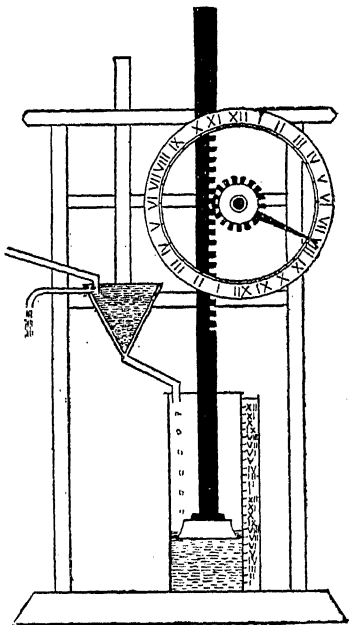
Cleopatra (51-30 B.C.), the famous Queen of Egypt. She was the eldest daughter of Ptolemy XIII., Autetes, and was b. in 69 or 68 B.C. Her father d. in 51, appointing her and her younger brother, Ptolemy, joint heirs of his kingdom, on the condition that they should marry. The will was ratified by the Rom. senate and C. ascended the throne at the age of seventeen. Two years later Ptolemy XIV., with the aid of his guardians, Pothinus and Achillas, drove his sister out of Egypt. She retreated to Syria to collect her forces, but in 47 Caesar arrived at Alexandria in pursuit of Pompey, and C. had little difficulty in exercising her fascinations over the susceptible Roman. Caesar became her lover and advocate, and, though repulsed at first, he ultimately defeated the Egyptians and reinstated C. on the throne. During the Alexandrine War Ptolemy XII. had perished, and accordingly C., with Caesar's advice, divided the rule with a younger brother, Ptolemy XIII., whom she nominally married. C. remained the mistress of Caesar, and accompanied him to Rome, where she apparently was living at the time of his assassination in 44. On her return to Egypt, C. is supposed to have murdered her brother, and declared Caesarion, her son by Caesar, joint ruler of Egypt. In 41, during the civil war that ensued Caesar's death, she met Antony in Cilicia, who fell a captive to her charms and became her infatuated lover and slave. From political motives Antony was obliged to return to Rome and marry Octavia, the sister of Octavius, but he speedily

returned to his mistress. Antony divorced his wife, and open war was declared between C. and Augustus. She was present with her lover at the naval battle of Actium (31), but, fearing the worst, retreated with her fleet to Alexandria. Antony was defeated, and, hearing a rumour of the queen's death, stabbed himself. C. made overtures to Augustus, but was unable to fascinate him, and, in order to avoid being led in triumph through Rome as a captive at the wheel of his chariot, she killed herself by a poisoned comb, or, traditionally, by an asp in her bosom (30). C. was a woman of great intellectual power and boundless ambition, and was quite unscrupulous in using her physical charms to attain her own ends. Her beauty and her fascinating personality have bewitched men throughout the ages, and have inspired poetry that is unsurpassed in the world's literature. Consult Mahaffy, *History of Egypt under the Ptolemaic Dynasty*, 1899; Stahr, *Cleopatra*, 1879; G. B. Shaw, *Cæsar and Cleopatra*; Sergeant, *Cleopatra of Egypt*, 1909.

Cleopatra's Needle, two granite obelisks which formerly stood at Heliopolis and were re-erected by Ramesses II. at Alexandria. During the removal to Alexandria the lower part broke away, and the Rom. engineers supported the angles on bronze slabs, one of which with three reproductions still supports the angles of the obelisk on the Thames Embankment. One of the 'Needles' was removed to London in 1878. It weighs 186 tons and is 68½ ft. high. The other was presented by the Khedive to the U.S.A., and in 1881 was erected in Central Park, New York.

Clepsydra, or water-clock, an instrument for measuring time by the flow of water, which seems to have been in use among the Babylonians, Hindoos, and Egyptians from the earliest times, and was regularly employed among the Gks. and Roms. It appears to have taken several forms. One of the earliest types was a copper vessel, having a small hole in the bottom, which was set to float in a vessel of water, and which necessarily sank within a certain time. The Gks. and Roms. had a form somewhat resembling a sand-glass, and consisting of a pierced globe, through which the water gradually escaped. This was used to limit the length of the speeches in courts of law. Later, since the rate of flow lessened as the vessel grew empty, the globe was kept filled with water, and that which escaped measured. Another type measured

time by the rising of a float on water which was increased by a slow regular inflow, a constant and uniform supply being ensured by an intermediate cistern. All these were subject to variations caused by differences of



CLEPSYDRA

atmospheric pressure and pressure, and also some arrangement was necessary to obviate the difficulty caused by the fact that an hour, being a twelfth part of the time from sunrise to sunset, varied with the season. The most successful invention to meet this seems to have been made by Ctesibius of Alexandria about 135 B.C.

Clerc, Sebastian Le (1637-1714), a Fr. designer and engraver, b. at Metz. In 1608 his *Géométrie Pratique* in eighty plates attracted the notice of Colbert, who procured for him a post in the Gobelins tapestry manufactory. Consult *Catalogue Raisonné de l'Œuvre de Sebastian Le Clerc*, by C. A. de Jombert (Paris), 1774. Le C. also pub. a number of scientific treatises and a *Traité d'Architecture*.

Clercken, a small tn. of Belgium,

situated in W. Flanders, about 20 m. S.W. of Bruges. Pop. 3500.

Clerestory (It. *chiaro*; Fr. *claire voie*), a term used in architecture to denote the windows in the upper part of the central nave of a church. Its purpose is to admit *clear* light, and this method of lighting was constantly used by the Romans in their baths and palaces.

Clergy (from Low Lat. *clericia*, which is derived from Gk. *κλήρος*, an inheritance) is a collective term signifying 'men in holy orders.' In the N.T. the Gk. word is used indifferently of the apostolic order and of the several congregations of the Christian Church. But very early the priests came to regard themselves as being peculiarly God's 'heritage,' as opposed to the faithful people or 'laity' (Gk. *λαός*), who were members of the Church. This distinction between 'C.' and 'laity' was accentuated by the adoption of sacerdotal vestments and official insignia; by the introduction of the tonsure; by the institution of monastic orders and of various titles and offices, and above all by the growing tendency to regard ordination as the outward sign of a direct call from God, and as conferring privileges which could not be renounced without apostasy. But after the Reformation this distinction, which is still very strongly marked in the Rom. Catholic Church, was purposely diminished in Protestant communities. Thus in the Church of England to-day the ordinary garb of the C., the cassock, for example, is peculiar only in so far as laymen have long ago discarded it through change in fashion. Moreover, the term 'C.' has broadened in meaning so as to be applied frequently to Nonconformist ministers, although 'clergyman' still properly refers only to priests of the Established Church. In the Middle Ages the claims insistently advanced by the papacy that, in its capacity of ruler over men's souls, it was above the merely temporal power of any sovereign, led as a natural corollary to the theory that the C., by virtue of their office, were entitled to many special immunities. Thus the C. claimed exemption from public burdens, from taxation as well as from civil office and above all they insisted on their right to have ecclesiastical courts instead of being subject to the ordinary lay jurisdiction. The result was that the offences of 'clerks' were dealt with much more leniently than those of laymen. The 'major orders,' including bishop, priest, deacon, and sub-deacon, are distinguished as the 'higher,' whilst lectors, acolytes, etc., are the 'lower'

C. The 'C' are still technically one of the three estates of the realm. Though bishops, however, sit in the House of Lords, they do so by reason of the baronies attached to their sees and not because they are Church dignitaries.

Clergy, Benefit of, see BENEFIT OF CLERGY.

Clergy Discipline Act, 1892, relates to the consequences of crimes or offences against morality by clergymen, and, in regard to the latter, provided a new form of procedure. The Act is divided into two parts, the first of which renders a beneficed clergyman liable to deprivation who is convicted in a temporal court of an indictable offence, or against whom a bastardy order has been made, or adultery found in a divorce suit. The second part of the Act provides that a clergyman convicted by a temporal court of an act constituting an ecclesiastical offence, or against whom any immoral act, conduct, or habit, being an offence against morality and not doctrine or ritual, is alleged, may be prosecuted by any of the parishioners of the parish in which he holds preferment, or by the bishop of the diocese, or a person approved by the bishop, and tried in the consistory court of the diocese. A conviction under the Act enables the bishop to treat the preferment of the convicted clergyman as void, while conviction for an immoral act under the second part of the Act renders the clergyman liable, subject to an appeal to the king in council, either to suspension or deprivation, with incapacity to hold another preferment. A clergyman may be re-instituted if pardoned by the Crown and if the benefice has not been filled.

Clericos Laicos, the first words of a bull of Pope Boniface VIII. (1291-1303). His arrogance made him many foes, his most noted conflict being that with Philip IV. of France. In 1296, by the bull named *C. L.*, the Pope forbade the levying of taxes, however disguised, on the clergy without his consent. Boniface was forced to recede from his position, and canonised Louis IX. Hostilities were later renewed, and in 1302 Boniface drafted and published himself the bull 'Unam Sanctum,' one of the strongest official statements of the papal prerogative ever made.

Clericus, Johannes, see LE CLERC, JEAN.

Cleridae, a family of coleopterous insects, consists of numerous and very varied species, a few of which are British. The body is generally cylindrical, the eyes emarginated, the antennae usually terminated by a club. Most of the beetles are found

on flowers, and some on old trees, but the larvæ are often carnivorous.

Clerk (from Lat. *clericus*, which comes from the Gk. *κλῆρος*, a lot, or inheritance), was at first a synonym of 'canon,' and was used indifferently of all who were servants of the Church. Soon the term 'C.' was used only of one in a 'minor,' as opposed to 'major,' or 'holy,' order. But 'Cs. in holy orders' is still the legal designation of clergymen of the Eng. Church. After the Reformation it was applied to members of the laity who assisted at baptisms, marriages, etc., and who led the responses for the congregation. In this sense the C. became known as the 'parish C.' But the word has had another distinct, though parallel, development. Chaucer's poor 'C. of Oxenford' was, above all, a devotee of learning. This sense of the term arose from the fact that in mediæval times learning was confined to the clergy. Now this meaning is narrowed down and is applied especially to servants of corporations and courts who keep the records, to lawyer's assistants and to all employees who write, make entries, and discharge the correspondence of any firm or company. In America a C. is also a retail salesman. The word is thus an example of the many whose meaning has deteriorated.

Clerk, John (1728-1812), author of *Essay on Naval Tactics*, worked on his estate of Eldin at geology and etching, besides his new theories of naval manœuvres. His naval schemes were adopted with complete success in 1782 when Lord Rodney gained a complete victory at sea over the Fr. His essay was not pub. entire till 1804.

Clerke, Agnes Mary (1842-1907), Eng. astronomer and scientist, *b.* in London. Although not a practical astronomer in the true meaning of the word, she was endowed with remarkable talent for collecting and summarising results of scientific and astronomical research. Her chief works which, however, are now out of date, are: *A Popular History of Astronomy during the 19th Century*, *System of the Stars*, *Problems in Astrophysics*.

Clerkenwell, a dist. in the N. of London within the metropolitan bor. of Finsbury. It is so called from a well in Foy Street, where the parish clerks occasionally acted mystery plays. In St. John's parish are the remains of the priory of the Knights of St. John of Jerusalem. A gaol called the C. Bridewell was built here in 1615 for the punishment of rogues and vagabonds of Middlesex, it was burnt down in 1669 but was

rebuilt. The present prison, called the 'House of Detention,' was notorious as the scene of a Fenian outrage in 1867. Watch-making was for a long period a very important industry and is still carried on to a degree.

Clerk-Maxwell, *see* MAXWELL, JAMES CLERK.

Clermont, a tn. of N. France, on the r. b. of the Brèche, 41 m. N.E. of Paris. The Hôtel de Ville, built by Charles IV. (*b.* 1294), is the oldest in the N. of France, and was founded during the Norman invasion. Pop. 5540.

Clermont, The, was one of the earliest steamships. Its inventor and builder was an American, Robert Fulton (1765-1815), who in 1803 obtained jointly with Robert Livingston the exclusive privilege of navigating with steamers the waters of New York. The engines of the C. were provided by Boulton and Watt of Birmingham, and it traded on the Hudson between Albany and New York from 1807 onward.

Clermont or **Clermont-en-Beauvaisis**, a tn. in dept. of Oise, a castle with dungeon of the tenth to eleventh centuries, the Kings Philip Augustus and Charles the Fair were *b.* here. Pop. 5540.

Clermont-Ferrand (the anct. Augustonemetum, the chief city of the Arverni), the cap. of the dept. Puy-de-Dôme, Central France. The two towns of which it is composed, C. and Mont-Ferrand, which are connected by a fine promenade, have grown up on the slopes of a small eminence. Its Gothic cathedral has fine stained glass of the thirteenth but it was not completed till the nineteenth century. In the cathedral square stands a statue of Pope Urban II. who here made in 1095 his memorable proclamation of the first crusade. The Romanesque church of Notre-Dame du Port is an eleventh-century structure. It is the seat of a bishopric, and from 535 to 1130 A.D. was the meeting place of seven ecclesiastical councils. After their sack of the town in the ninth century the Normans rechristened it Clarus Mons. The chief manufactures are those of rubber goods, macaroni, semolina, preserved fruits and jams, chemical products, boots and shoes, and linen and woollen goods. It has handsome squares, is an educational centre, and is famous also as the bp. of Pascal. Pop. 111,710.

Clermont-Ganneau, **Charles Simon** (1846-1923), a Fr. Orientalist, *b.* in Paris Feb. 19, 1846. His father was a sculptor of some repute. Ganneau was educated at the Ecole des

Langues Orientales, and afterwards entered the diplomatic service as dragoman to the consulate at Jerusalem, where he inaugurated his archaeological pursuits by the discovery and translation of a theretofore unpublished story in the *Thousand and One Nights* (see below). Soon afterwards he occupied a similar position at Alexandria. In 1870 he discovered the 'stele' of Mesha, a stone bearing the oldest Semitic inscription known. He commanded a British Archaeological expedition to Palestine in 1874, and later a Fr. expedition to the Red Sea and Syria. Chevalier of the Legion of Honour 1875; Vice-Consul at Jaffa, 1880-82. Subsequently he became director of the Ecole des langues Orientales. He became Consul-General in 1896, and Minister Plenipotentiary in 1906. He exposed certain famous forgeries of Hebrew texts offered to British Museum. Publications include:—*Histoire de Calife le Pêcheur et du Calife Haroun er-Rachid* (trans.), 1869; *La Palestine inconnue*, 1876; *Les Fraudes Archéologiques en Palestine*, 1885; *Recueil d'Archéologie orientale*, 1885-1924.

Clermont L'Hérault, or **Clermont de Lodève**, a tn. in the dept. of Hérault, S. France, 10 m. S.S.E. Lodève. Pop. 5620.

Clerodendron, a genus of Verbenaceæ, flourishes in its wild state in tropical and warm climates, but in Britain grows only in greenhouses. *C. Thompsonæ* is a commonly cultivated evergreen plant which bears red and white flowers. *C. fragrans* and *C. trichotomum* are both shrubs, the former with white, the latter with variegated flowers.

Clery, Major-General Sir Cornelius Francis (1838-1926). K.C.B. in 1899, and K.C.M.G. in 1900. He was D.A.G. to the Forces and Headquarters, 1896-99. During the years 1861-66 he was adjutant in the 32nd Light Infantry. Between the years 1875-77 he was D.A.A.G. in Ireland, and from 1877-78 he held a similar position at Aldershot. He saw active service in the Zulu War of 1879, where he was chief staff officer of the 'Flying Column.' He was present at the Battles of Isandhlwana and Ulundi, when he was mentioned twice in despatches. He fought in the Battles of El Teb and Tamai, and was again mentioned in despatches. He served in the Nile expedition in 1885 for the relief of Gordon, and during the years 1886-88 was Chief of the Staff of the army of occupation in Egypt. He commanded the 2nd Division in the S. African War of 1899-

1902, being again mentioned in despatches.

Clery-Saint-André, cap. of the Canton of Loiret, near Orleans. Near it is a tumulus, called by the peasants the tomb of Attila. Pop. 1905.

Clésinger, Jean Baptiste Auguste (1814-83), a French sculptor, intimately connected with the story of George Sand and Chopin. Solange, who inherited her mother's passionate nature without any of her genius, eloped with C. after sitting to him for her bust. The mother, George Sand, effected a private marriage, established the young people in Paris, and settled a large share of her property upon them. But C. proved himself an ungrateful rogue, and George Sand was obliged to disown him and her daughter. C. was nevertheless one of the leading sculptors of his day, and executed noteworthy portraits of George Sand and Chopin. Among his works, many of which are objected to on the ground of their immodesty, are allegorical representations of Tragedy and Literature and a marble statue of Louise of Savoy.

Clevedon, a par. and attractive watering-place, 1 m. from the Severn and 16 m. S.W. of Bristol by the Great Western Railway, in the N. division of Somerset, England. It is interesting for its associations, for here lived Coleridge at Myrtle Cottage (1795), and in the parish church lie Hallam, the historian (*d.* 1859) and his poet son, Arthur (*d.* 1833), to whose memory *In Memoriam* was written, whilst the original of Thackeray's Castlewood in *Esmond* is Clevedon Court. Pop. 6724.

Cleveland, one of the largest industrial cities of the U.S.A. in Ohio, and cap. of Cuyahoga co., is situated on the S. shores of Lake Erie, which is here connected with the Ohio R. by the Ohio Canal, 183 m. S.W. of Buffalo and 98 m. E. of Toledo; it is the terminus of seven railways, whilst two run through it from E. to W. The two divs. of C., on either side of the R. Cuyahoga, are united by two great viaducts. The first, built in 1878, is of stone, and spans the river at a height of 60 ft., whilst the second, of iron, which was erected in 1888, is 3931 ft. long, and rises 100 ft. above the valley's base. Numerous bridges cross the river harbour, whilst beyond the mouth a breakwater, 2 m. long, encloses an excellent outer roadstead. During 1890-1900 the tonnage of ships constructed in C. exceeded that of the vessels built in any other American town. A great deal of the traffic passes over the lake. But though C. is an important centre

for corn and lumber, and is, moreover, the largest market for fresh fish in the U.S.A., the wealth of the city depends on its manufactures, and above all on its flourishing iron industry. Thus engines, steel and iron vessels, automobiles, boilers, steel rails, and bridges are constructed at the various works, besides nails, agricultural implements, and screws. The reason of this is that the city is centrally situated for obtaining the coal from N. Ohio, the iron ores from Lake Superior, and the limestone from the is. of Lake Erie. It has over 3000 manufg. plants employing 200,000 people, and is the seat of the Standard Oil Co. The Detroit-Superior High Level Bridge is worth crossing for the view it affords of lake and river, harbour and break-water, iron and steel, lumber and coal, steam and sailing vessels, freighters and liners, blast furnaces and foundries, flour mills and grain elevators and on the banks above the valley the vast manufacturing plants which furnish employment for more than half of its citizen workers. Rising from a plain from 50 to 140 ft. above the lake, C., or the 'Forest City' as it is called, from the abundance of its shady elms and maples, presents an imposing appearance, with its fine public buildings—including a free municipal library of 200,000 volumes—its large squares and stately mansions, its famous Euclid Avenue with winding walks and flower-bordered driveways, its university, technical high school, Public Auditorium seating 12,000 people and possessing an organ of 1010 pipes, and its municipal airport one of the largest in the world. Founded in 1796 by Moses Cleveland, it has doubled its pop. in twenty years and quadrupled its commerce, and is now the sixth city in the U.S.A. Pop. 900,429.

Cleveland, a city in Tennessee, with iron and textile industries. Pop. 9136.

Cleveland ('cliff-land'), a parl. div. in the E. of the N. Riding of Yorkshire, extending from Whitby to the I. Tees. It received its name from the cliffs which form the N.W. borders of the Yorkshire Moors. It is a district of wild highlands, interspersed with a few cultivated and pleasant valleys. Since the discovery of the rich beds of iron ore in its hills (*see* CLEVELAND IRON-STONE) C. has grown into a great industrial centre, with Middlesbrough as its chief town, supplying Great Britain with one-third of its pig-iron. The pop. is not returned separately.

Cleveland, John (1613-58), English satirist, who, during the Common-

wealth, was one of many Royalist fugitives condemned to a life of wandering and abject poverty. In the ingenuity of his conceits he surpasses the so-called metaphysical poets. Though his vigorous satire, such as appears in his poems, *The Rebel Scot*, *Smectymnus*, and *Rupertismus*, may not long have survived the passions which called it forth, it won a contemporary fame far greater than *Paradise Lost*.

Cleveland, Stephen Grover (1837-1908), 22nd and 24th President of the U.S.A., b. at Caldwell, N.J., U.S.A., March 18. He was descended from Moses Cleveland of England, who settled near Woburn, Massachusetts, in 1635. His father was the son of a watchmaker and was pastor of the Presbyterian church at Caldwell. When he was sixteen, his father died, and the son left school to become a clerk in a store in Clinton, New York. For a time he taught at school, and then studied law, being admitted to the Bar at Buffalo in 1859. He entered politics as a Democrat, and his rise was rapid. In 1863 he became Assistant District Attorney for Erie county, in which Buffalo is situated. He was elected Sheriff in 1870, and in 1881 he became Mayor, being noted for his reforms. This attracted the attention of the state leaders, who brought about his nomination for Governor, and he was elected to that office in 1882 by the hitherto unparalleled majority of 192,000 votes. As New York was always considered a pivotal state, and as the Democrats up to that time always needed it if they were to have a chance to elect a Presidential candidate, C.'s victory made him a national figure. He was nominated for the Presidency in 1884, and was elected after an exceedingly bitter campaign, in which his Republican opponent was James G. Blaine (*q.v.*). C. entered the White House as the first bachelor the country had seen there in many years. The nation was delighted with the Presidential romance, when it was announced that C. was to marry the lovely Miss Frances Folsom, daughter of a former law partner of the President and the ward of C. She became one of the most popular mistresses the White House had ever known. C. soon showed the mettle of which he was made by combating the old system of 'to the victor belong the spoils,' by steadily advocating that an increasing number of governmental employees and officials should be placed in the civil service and, therefore, not removable except for cause. In 1887 in a message to Congress he

pleaded for the admission to the country of raw materials needed in manufacturing, free from duty. This was his famous battle cry of 'Tariff for revenue only.' Although the style of his speeches and messages was rather sober, some of his phrases nevertheless caught the public's fancy, especially when he said some of his political opponents would sink into 'innocuous desuetude.' He was renominated by the Democrats for the Presidency in 1888, and, much to the country's surprise, was defeated by Benjamin Harrison, the Republican candidate. In 1892 a practically unprecedented thing up to that time took place; for the Democrats nominated the once-victorious and the once-defeated C. for the Presidency again, and he was triumphantly elected. The storm clouds soon gathered around him. In the first place, he fought Republican tariff schemes. Then, against the wishes of many of his own party he forced Congress to repeal the Sherman silver purchasing act, thereby safeguarding the gold standard. In 1895 his strong advocacy of the Monroe doctrine in a dispute between Great Britain and Venezuela over the boundaries between the latter country and British Guiana almost involved the U.S.A. in a war with England. Feeling was tense in both nations, but the situation was saved by the cool statesmanship of Lord Salisbury, who was then British Prime Minister. Before he left the White House, C. saw his gold-standard policy repudiated by his party, which had nominated to succeed him W. J. Bryan (*q.v.*), who ran on a free silver platform. Bryan was defeated by William McKinley and C. retired to private life, a prophet without honour in his own party. He settled quietly at Princeton, New Jersey. It soon became known that he was a poor man, and it was with relief that the nation learned that he had been made a paid trustee of a great insurance company. Before he died there occurred a revulsion in public feeling, and it was generally realised that C. would be numbered among the greatest and most courageous of the line of American Presidents.

Cleveland Ironstone is mined in the Middle Lias of Cleveland, which is situated in the N. tiding of Yorkshire, between the Tees and Whitby. Certain geologists believe that this dark green clay ironstone, which is not so valuable as that of the coal measures, was 'derived partly from mechanical deposition and partly from subsequent chemical replacement of the originally deposited car-

bonate of lime.' The theory that once the bed was limestone is supported by the discovery of shells such as *Pecten* and *Avicula*. Only 60 per cent. of the ore is carbonate of iron, the rest being composed of phosphates, silica, and argillaceous matter. It is found in seams 20 ft. thick, and is worked on the 'bord-and-pillar' system, Middlesbrough being the centre. Its discovery, which dates from 1851, has revolutionised sleepy hamlets into industrial towns.

Cleves: (1) Former duchy of Rhenish Prussia, united with Brandenburg in 1666. (2) Town of Rhenish Prussia; formerly capital of duchy of same name, near the Rhine and the Netherlands frontier, 23 m. N.W. of Wesel. Its chief manufactures are linens, cottons, silks, woollens, and tobacco. The castle is famous for its 'Swan Tower,' 180 ft. high, which now serves as a prison. There are some interesting churches and monuments. Pop. 29,310.

Clew Bay, an inlet on the W. coast of co. Mayo, Ireland. From the Atlantic it passes inland for 15 m., with an almost uniform breadth of 8½ m. Clare ls. faces its entrance, whilst the upper portion is dotted with an archipelago of some 300 fertile islets.

Clews, the two bottom corners of a square sail. In a fore-and-aft sail the aftmost corner is termed a C., the other, or weather C., being more generally called the 'tack.'

Clianthus, a genus of Leguminosae cultivated in greenhouses on account of their showy flowers. *C. puniceus*, the parrot's beak, can be grown in the open air in Britain if carefully protected.

Cliché, a Fr. term denoting the stamp of a die on any soft metal. By the impression made the designer judges the effect of his work.

Clichy la Garenne, a suburb, and 4½ m. N.W. of Paris, on the r. b. of the Seine, in the dept. of Seine, N. France. Its industries comprise the manufactures of chemicals, starch, soap, oil, and rubber. Merovingian kings lived at Clichy (anc. Clippacum). Pop. 59,480.

Click-beetles, or *Elateridae*, form a family of coleopterous insects, most of which have the useful characteristic of being able to right themselves when fallen on their backs; this they accomplish by springing into the air by means of special processes in the back, and the movement is accompanied by a loud clicking sound. They are also called skip-jacks when possessed of this habit. The larvae are often known as wire-worms, and are very destructive; their home is usu-

ally underground, and their food the roots of crops.

Client, supposed by some writers to be derived from Lat. *cluere*, to hear. From the very beginnings of anct. Rome there appears to have existed the relation of patronage (*patronatus*) and clientship (*clientela*). When a man manumitted (analogous to 'emancipated') a slave, he became the *patronus* instead of the *dominus* of the slave, who was thenceforth a freed man (*libertus*). The tutelage of the *patronus* entitled him to a specific share in the freedman's estate after death. This relationship at Rome fostered the formation of similar relationships between foreigners and Rom. citizens, the result being that the foreigner obtained a protector and the Roms. an accession of influence from occasionally becoming the patron of a man of letters. The poet Horace, for example, was a *libertus*. The Rom. C. was defended in law-suits by his patron; hence the adoption of the term in modern legal practice.

Clifden, a mkt. tn. and port, 29 m. S.W. of Westport, in co. Galway, Ireland. It is connected by rail with Galway. Pop. 809.

Cliff Dwellings, certain remarkable ruins of houses, built in horizontal recesses down precipitous cliffs in W. Colorado, Arizona, Utah, and New Mexico. The traveller, as he sees the remains of what must once have been a well-constructed dwelling of lime and stone, with windows and doors both rectangular in frame, is struck above all by its extreme solitude and inaccessibility. Its former inhabitant must surely have been in hiding from his foes, for his home was built in a hollow, with beetling crags overhead, so that it was quite invisible from the cliff summit. In one such ruin the footholes carved in the rock-face may still be seen, but it seems certain that the ascent from the valley below was usually made by ladders or ropes, which could be carried up after use. For the most part these perilous homes are found dotted here and there along the great cañons or gorges, but in the Rio de Chelly there is a cluster of them large enough to be called a town. There is one in Colorado above the R. Mancos, which looks down from a giddy height of 800 ft., but the most renowned in that country is the great C. D. known as the Palace of Chapin's Mesa. These dwellings, which rose sometimes to two or even three stories, so strongly resemble the 'pueblos' of the Indians hard by that most archaeologists are agreed in referring their construction to the immediate forerunners of the Pueblo tribes.

Clifford, the name of a family descended from Richard Fitzpounce. His son Walter, who adopted the name C. on acquiring by marriage Clifford Castle on the Wye, near Hereford, was the father of the ill-fated 'Fair Rosamond,' whom Henry II. frankly declared to be his mistress. On her death in 1176 she was buried in Godstow Nunnery, there being small foundation for the sinister legend that she was murdered by Queen Eleanor. The soldier-judge, Roger, who won honour at the Battle of Evesham (1285), was a great-grandson of Walter. Other of his descendants were John (1435-61), 'the savage Lancastrian'; Henry (1493-1542), fifteenth Lord C. and first Earl of Cumberland; and another Henry (1591-1643), the fifth and last earl.

Clifford, Sir Hugh Charles, Colonial governor; b. in London, 1866; eldest son of Maj.-Gen. the Hon. Sir H. H. Clifford, V.C., C.B. In 1883, though he had just passed for Sandhurst, he became instead a cadet in the Malay States Civil Service. From 1887 until 1901 his work lay mostly in Pahang. There he became Governor's agent (1887), acting Resident several times between 1890 and 1895, and finally British Resident (1896-99 and 1901). In later years he has been associated first with Trinidad and Tobago (1903-7), and then with Ceylon (1907 and 1909), always as Colonial Secretary. Governor of the Gold Coast, 1912-19; of Nigeria, 1919-25. As Governor of the Gold Coast was responsible for British sphere of occupation in Togoland, 1914-19. Governor of Ceylon, 1924-27; since then, Governor of Straits Settlements until Oct. 1929. G.C.M.G., 1921; and G.B.E., 1925. He has been a constant contributor to *The Cornhill*, etc., was joint editor of a Malay language dictionary, and has also pub. *In a Corner of Asia*, 1899; *A Free Lance of To-Day*, 1903 (revised ed., 1928); *Further India*, 1904; *The Downfall of the Gods*, 1911; *Malayan Monochromes*, 1913; *The Further Side of Silence*, 1916; *The German Colonies*, 1918; *The Gold Coast Regiment in the East African Campaign*, 1920; *In Days that are Dead*, 1926; *Some Reflections on the Ceylon Land Question*, 1927; *Bush Whacking, and other Asiatic Tales and Memories*, 1929.

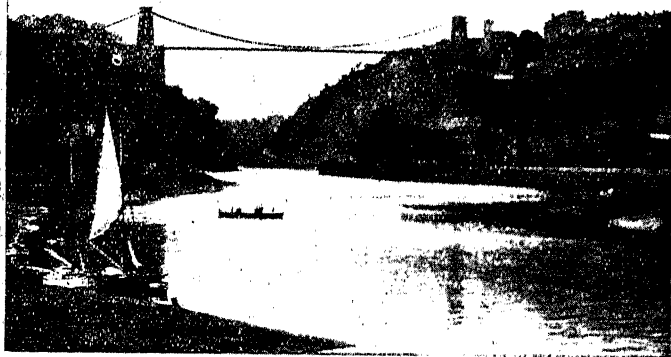
Clifford, John (1836-1923), Baptist minister, was b. in poverty Oct. 16, 1836, at Sawley, Derbyshire; eldest child of Samuel Clifford, Chartist and Calvinist. As a child, he worked in a lace-factory. Some Baptists became interested in him, and started him in education at the Baptist Coll., Nottingham. He received a call to

Praed Street Chapel, Paddington, in 1858, and while in that ministry he attended University Coll. He took B.A. degree, Lond., in 1861; B.Sc. in 1862, with honours in logic, moral philosophy, geology, and palaeontology. In 1864 he became M.A. (coming out first); in 1866, LL.B. The Geological Soc. made him a Fellow in 1879. In 1883 he was made Hon. D.D. of Bates Coll., Maine, U.S.A.; thereafter he was known as 'Doctor Clifford.' His ministry had been transferred to Westbourne Park when the chapel there opened in 1877: he was its

1919; and *The World Brotherhood according to Jesus*, 1920. He edited the *General Baptist Magazine*, 1870-83. He d. suddenly, after addressing a meeting, at Southampton-row, Bloomsbury, Nov. 20, 1923.

Clifford, Thomas (1630-73), b. in Devonshire, was one of the members who formed the 'Cabal,' being instrumental in arranging the Treaty of Dover, 1670. In accordance with his professed views, he supported the Declaration of Indulgence issued by Charles II., and on the bringing in of the Test Act resigned from public life.

Clifford, William Kingdon (1845-



CLIFTON SUSPENSION BRIDGE

minister till 1915, when he released himself for more general activity. In 1897 he made a tour round the world. He was president of: the London Baptist Assoc., 1879; the Baptist Union, 1888 and 1899; the National Council of Evangelical Free Churches, 1898-99; the British Chautauqua, 1899-1900; Baptist World Alliance, 1905 and 1911; and Baptist European Congress, 1913. He was an ardent and pugnacious Liberal; and many of his printed works (about 100 titles) concern social problems. They include: *Is Life Worth Living?* 1880; *Inspiration and Authority of the Bible*, 1892; *The Secret of Jesus*, 1904; *The Ultimate Problems of Christianity*, 1906; *State Education after the War*, 1916; *The League of Free Nations*,

1879), a mathematician. His many able lectures before the British Association and at the Royal Institution were exceedingly popular. Besides his *Essays and Lectures*, 1879, which reveal his philosophy, he wrote many mathematical treatises.

Clifford, Sophia Lucy, Mrs. William Kingdon, a novelist and playwright, daughter of John Lane, a well-known Barbadian. She married in 1875 the mathematician William Kingdon C. (d. 1879). Her most popular novel is *Aunt Anne*, 1893, in which she describes with sympathy and insight the sordid tragedy of an old lady's life. Her plays include: *Hamilton's Second Marriage*, *A Supreme Moment*, 1900; *The Searchlight*, 1903, and *The Latch*, 1908. Her latest books were: *The House*

in *Marylebone*, 1917; *Mr. Webster and Others*, 1918; *Miss Fingal*, 1919. She *d.* in 1919.

Clifton, a suburb and residential dist. of Bristol in Gloucestershire, England. The fine gorge of the Avon, spanned by Brunel's famous suspension bridge, cuts through the plateau on which the tn. is built. The bridge, which took from 1832 to 1864 to build, has a span of 702 ft., and is 245 ft. above high tide-level. The celebrated thermal springs are at the foot of St. Vincent's Rock. Pop. included in Bristol.

Clifton, Robert Bellamy (1836-1921), was b. in London, and educated first in the city and afterwards at Cambridge. In 1860 he became Professor of Natural Philosophy at the new Owens Coll., Manchester; and he was professor of experimental philosophy at Oxford 1865-1915. Died at Oxford Feb. 22, 1921.

Clifton College, one of the public schools for boys, was founded in 1862. It consists of a preparatory and junior school and an upper school, the latter having classical, modern, and engineering departments, preparing boys for the university, the army, or commercial life. There are several scholarships also open to the boys.

Climacteric Years (Gk. *κλιμακτήρ*, round of a ladder) were supposed to be certain years in a man's life which specially affected him as regards health, and general circumstances of life. These years were those made up by the odd powers of 7, as 49, and the 'grand climacteric' was reached at 63, when 9 and 7, the two mystical figures, were multiplied. As applied to a woman, it refers to the period known as the 'change of life,' occurring usually between the ages of 45 and 50.

Climate (from Gk. *κλίμειν*, to lean) means the average succession of atmospheric conditions for a long period of time, as opposed to 'weather,' which is used of a single occurrence in the series of climatic conditions. The C. of a locality is thus its average weather. Wind, humidity, and temperature are the chief elements of C. As regards humidity, account must be taken of average annual rainfall; the variations from season to season and year to year in rainfall; the proportions of precipitation which falls as rain and snow respectively; cloudiness, and relative and absolute humidity. As regards temperature, it is important to notice the average annual and seasonal temperatures, the extremes of temperature during a season and the temperature of exceptional seasons. There is a distinction between 'absolute tempera-

ture' as measured by the thermometer, and 'sensible temperature,'—that is, the temperature as it appears. For example, air of a given temperature seems warmer at rest than in motion, and if the temperature is high, dry air seems colder than moist, and with a low temperature it is the other way round. A C. is said to be 'uniform' when the winds are fairly constant in force and direction; when the range of temperature is small, and the distribution of rainfall fairly equal: otherwise it is 'variable.' Thus at Duluth the average range of temperature from one year to another was as much as 120° and at Chicago 108° (for the same thirty years). Some places on the borders of the equatorial calms have their wet and dry seasons quite distinct. Where the monsoons blow, the winds regularly change from one season to another. Cs. are further classified according to parallel 'climatic' zones, which have reference to the amount of heat received from the sun, and therefore represent what is called 'solar climate'; or into 'oceanic' and 'continental' Cs., where the former refers to the effect of water, the latter of land upon C. The three climatic zones are the torrid or tropical, the temperate or intermediate, and the frigid or polar. Their limits are variously defined according to latitude, winds and temperature. The latitudinal limits for the zones are as follows: 23½° N. to 23½° S. for the tropical; 90° N. to 66½° N. and 90° S. to 66½° S. for the Arctic and Antarctic polar zones respectively, and 23° to 66½° (N. and S.) for the two intermediate zones. The zones can only be vaguely defined according to winds. Thus the trade-wind zone often overlaps the torrid zone to 30° or even 35° N. and S. Prevailing westerly winds and a variable C. characterise the intermediate zones which stretch polewards from the zone of the trade winds. If temperature be the standard of division, the isotherms are the boundaries of the various zones. A satisfactory division is obtained if the intermediate zones are bounded on the equator side by the annual isotherms of 68° and on the polar by the isotherm of 50° for the warmest month. The C. of every zone may be subdivided into oceanic and continental. The following is a statement of the main differences between these subdivisions in oceanic Cs.: (1) The annual range of temperature is much less. In Madeira (an is.) it is only 13°, whilst at Bagdad (in Asia Minor) it is 40° F. Both places lie in a low latitude. (2) The 'annual march' of temperature is much more

retarded by the sea. Thus over the ocean the springs are colder, the autumns warmer. (3) The humidity is greater. This results in more cloudiness and a higher rainfall. (4) The winds are, generally speaking, stronger. The leeward shores of the oceans, the W. coasts in the temperate zones, and the E. coasts in the trade-wind zones have oceanic Cs. Under marine Cs. crops of wheat and potatoes, etc., are less nutritious owing to the excess of moisture, etc. Continental Cs. include 'desert,' 'littoral' or 'coastal,' and 'mountain and plateau' Cs. In the desert C. the daily variability of temperature is considerable, the nights being much cooler than the days. In the day-time the winds blow strong and carry great dust clouds. Rocks crack because of the violent changes in temperature, and in consequence of the extreme dryness plants and animals cannot live. Mountain and plateau Cs. have greater insolation (warmth from the sun) and radiation because of the increased elevation, a lower absolute humidity, a lower temperature, and a greater precipitation or rainfall. Highlands give rise to local winds and interfere with the horizontal passage of the atmosphere, so that on the two sides of a range the pressure and humidity may be quite different. Continental Cs. are influenced by forests. For by increasing the surfaces exposed to radiation and evaporation they lower the summer temperatures: they also afford shelter from winds, and by retarding the permeation of rain and the melting of snow increase the relative moisture of the air.

Climatic characteristics of the various zones.—In the Tropical Zone: The prevailing wind is easterly north-easterly above the equator, south-easterly below. Usually the trade winds are dry: the Sahara and desert regions of Australia lie in their path. But in their passage over hills and plateaus they yield moisture, so that the tableland of Brazil and the E. slopes of the Andes have plentiful rain. The monsoon rains, which fall when the monsoons blow from sea to land during the warm season, fall on regions that would otherwise be dry. In the 'doldrums'—a belt of calm between the two trade winds—convection currents lift up abundant moisture, which is precipitated after condensation as the daily afternoon rains. On the Sahara the extremes of temperature are great, 120° and 50° F., although the average annual variation is slight. But high temperature is the chief distinction of this zone. In the Intermediate Zones: The average temperature is

lower, the annual range greater, and the daily range less, than in the tropical zone. The inequality of day and night and the considerable range in the angle of the sun's rays, and therefore of their heating power, account for the greater seasonal variability of temperature. In latitude 45° there are at the summer solstice 15½ hours of sunshine (and heating); at the winter solstice there are only 8½ hours, the remaining hours being given over to night (and cooling). Moreover, in the same latitude the summer may be very hot, the winter very cold; for when the days are longest the sun's rays are almost vertical, and the heat per hour, therefore, is greatest. The winter's cold also has the effect of retarding the spring, and summer's heat of lengthening the autumn. For in spring the oblique sun's rays take a long time to melt all the snows and ice, and until this is done the air above cannot grow warm: in the autumn, on the contrary, the ground continually warms the atmosphere by giving up its stores of summer heat. The climates of the N. and S. intermediate zones differ in that the former, owing to the greater extent of earth, is on the whole continental, the latter oceanic. Thus the cool summers of the S. zone are unfavourable to agriculture. The winds for the most part are westerly. They are dry when they pass from the sea to warmer lands (for they take up moisture), and wet when the regions over which they blow have a cooler temperature than their own. Cyclones and anticyclones furnish the greatest annual extremes both of heat (during cyclones) and of cold (during anticyclones). They also give moisture to the middle latitudes. The greatest annual variability of temperature in the world is found in parts of Siberia remotest from the sea. Continental climates are prevalent on the E. borders of the continents, oceanic on the W. But the contrast is greater between opposite sides of the Atlantic (compare England and Kamchatka) than between opposite sides of the Pacific (compare Labrador and Vancouver). This is due to the warming power of the Gulf Stream and to the icy water which passes from the Arctic into the open Atlantic down the E. coast of America. In the Polar Zones: The unequal distribution of heat is very great, and at the poles the year is divided into two periods of perpetual day and perpetual night. Whilst snow is still on the ground the temperature of the surface, even in summer, cannot be raised above 32°, but where land is

ee of snow the range of temperature great. The amount of rainfall necessary for agriculture depends on the temperature of the regions, the distribution of precipitation throughout the year (much rain is needed whilst the crops are growing), and the nature of the crops. In S. Australia 1 in. of rain support 9 sheep per . m.; in New South Wales 14 in. support 96, and 20 in. 640 sheep per . m. A 34-in. rainfall in the Argentine will maintain 2630 sheep per . m. In prehistoric times, changes

C. have been brought about by atmospheric, astronomic (relating to changes in the earth's orbit), and geographic (relating to changes in the topography of land and in its relation to water) causes. The 'petrified rests' of Arizona prove that it once had a humid C., whilst gypsum deposits show that New York was once arid. At one time Greenland was warm enough to grow magnolias, and glaciers were very much more widely distributed.

Climax (from Gk. κλίμαξ, a ladder), figure of speech much used in rhetoric. A series of words, phrases, sentences, expressive of facts or ideas, is so arranged that the mind of the listener is led gradually, as by ladder rungs, from what is of least to what is of crowning importance. The impressiveness of Macaulay's style depends not a little on his appreciation of the effectiveness of this figure.

Climbers, the popular form of the old term Scansores, which was applied to birds of a climbing habit, any of which were characterised by having two toes turned backwards and two forwards. Examples of this solitary order are woodpeckers, juncos, cuckoos, and cockatoos.

Climbing Perch, or *Anabas scansors*, a fish which is allied to the mullet, and is noted for its ability to travel overland by means of its fins. It is believed to climb trees by the same organs, and has been found up a tree in India.

Climbing Plants. There are at least six different methods of climbing adopted by plants; each is distinct itself, although perhaps the casual observer would have some difficulty in enumerating them: (1) By means of the main stem which twines round the support; this occurs in hop, ivy, etc., the usual direction is from right to left, but the hop always winds from left to right; (2) by tendrils, as in passion flower, sweet pea, etc.; (3) by means of spines and prickles, as in rose and all brambles; (4) by aerial roots, good examples of these are ivy and ampelopsis; (5) by the stipules or leaf-stalks: this method is found in tropæolum, clematis, and

solanum jasminoides; and (6) by the stipules of the leaf, which are modified as tendrils, as in smilax. C.P. are commonly cultivated for decorative and useful purposes; they can easily be grown to hide bare walls, to cover trellis-work, to make a shelter from the sun, etc. Some are hardy, and both annuals and perennials are easily raised from seed out of doors, e.g. canary creeper. Others which are half-hardy must be raised under glass, and not put out in the open ground till mild weather is ensured. The majority of outdoor C.P. are deciduous, shedding their leaves once a year, but a few are evergreens, such as the ivy.

Clinical Medicine (Gk. κλίνη, bed), that method which deals with the treatment of a disease at the bedside of the patient and with lectures delivered there also.

Clinometer, an instrument used by surveyors, geologists, etc., for measuring the dip or angle of inclination of surfaces. In its simplest form it consists of a graduated arc and a plummet. When the instrument is held level the plummet points to zero, but when it is held at an inclination it shows the number of degrees by which the upper surface of the C. differs from the horizontal. The most useful form of C., however, is that which is combined with a pocket compass, as it is generally necessary to know the direction of the slope as well as its amount.

Clinton: (1) Co. seat of Clinton co., Iowa. It stands on the Mississippi R. at a point where it is crossed by a railway bridge 4000 ft. long, and has important industries, with many beautiful old houses. Pop. 25,726. (2) Cap. of Henry co., Missouri, U.S.A., on the Grand R., with large flour-mills. Pop. 5744. (3) a town in co. Worcester, Massachusetts, on the R. Nashua, with extensive manufactures. Pop. 12,317. (4) Co. seat of De Witt co., Illinois, U.S.A., with railroad shops and clothing factories. Pop. 5920. (5) a city of Indiana on the Wabash R. with various manufactures in a farm and coal mining region. Pop. 7436. (6) a village of Oneida co., New York, 9 m. S. of Utica, the seat of Hamilton College for men, founded in 1793 by Samuel Kirkland (1741-1808), a missionary to the Oneida Indians, President Washington expressing 'a warm interest in the institution.' (See *Life of Samuel Kirkland*, by Samuel K. Lothrop.)

Clinton, an American family founded by Charles Clinton (1690-1773), b. in Ireland. He left Ireland for America and established himself in Ulster co., New York.

James Clinton (1736–1812), was the son of Charles C., and served in the U.S.A. army. He was the father of De Witt C.

George Clinton (1739–1812), the son of Charles C.; in 1775 joined the army, after having sat in the New York Assembly. He held a high place in the army, and in 1777 was appointed Governor of New York, becoming finally Vice-President of the U.S.A., an office which he held till his death.

Clinton, De Witt (1769–1828), American statesman, began his political career by acting as private secretary to his uncle, the leader of the Republican party at New York (1790–95). From 1798 to 1802 he was a member of the state Senate, and three times (1803–7, 1808–10, and 1811–15) he was mayor of New York City. In Congress he identified himself with the movements for abolition of slavery and of imprisonment for debt, and for improvement of the free public schools system. In 1825 he was present at the opening of the canal between the Hudson R. and Lake Erie—an undertaking which had been carried through largely as the result of his persistent efforts.

Clinton, Sir Henry (c. 1738–95), the son of Admiral George C. He began military service in New York, but was afterwards made lieutenant-colonel in the Grenadier Guards in England. He took part in the Seven Years' War; also in the battles of Bunker's Hill and Long Island, and eventually became commander-in-chief in N. America. Owing to unpleasantness, however, he resigned his command. In 1772 and 1790 he sat in parliament, and in 1794 was appointed Governor of Gibraltar.

Clinton, Sir Henry (1771–1829), the younger son of General Sir Henry C. He served in the Corunna campaign, and distinguished himself in the Peninsula under Wellington, being made lieutenant-general. He was also to the fore at Waterloo.

Clinton Group, the name assigned by geologists in New York to the Upper Silurian series of rocks, composed chiefly of argillaceous sandstone.

Clio, the first of the nine muses, who presided over history, and is represented as crowned with laurels, holding a book in one hand, and in the other a trumpet.

Clio, a genus of naked marine gastropod or wing-footed molluscs so called because they are constructed for moving through water by means of fin-like membranes which are lateral expansions of the foot. *C. borealis* is a species which abounds in

N. seas and constitutes a great portion of the food of the Greenland whale.

Clipper, a sailing ship constructed for very rapid sailing. It is longer and narrower than an ordinary sailing vessel. Many of these clippers, which were used frequently in the transport of tea, were built at Aberdeen, but they are not used now.

Clipperton, an is. in the Pacific Ocean. The is. is of coral formation and its highest point rises to more than 150 ft. above sea-level.

Clissold Park, a public park in Stoke Newington, N. London. It was acquired in 1887 at the cost of £96,000, and opened in 1889 by the Earl of Rosebery, the first chairman of the London County Council. The mansion of the park was formerly the residence of a Mr. Crawshaw, who rented it, with its adjacent grounds, from the Ecclesiastical Commissioners at an annual sum of £109 and a fat turkey.

Clisson, a tn. in the dept. Loire-Inférieure, France, 17 m. S.E. of Nantes. The town and castle, belonging to the celebrated Clisson family, were destroyed in 1792–93 during the Vendean wars; the former was rebuilt in the nineteenth century. Pop. 2775.

Clitheroe, a market tn. and municipal bor., on the Ribble, at the foot of Pendle Hill, in the C. parliamentary div. of Lancashire, England, 35 m. N. by W. from Manchester. C. has paper and cotton-mills, breweries, foundries, printing establishments, and important lime and cement works in the neighbourhood. Its free grammar school was established in 1554, and there are still some remains of an eleventh-century castle, which with the grounds were purchased for the town as a memorial of the Great War. Pop. 12,202.

Clitus, or *Cleitus*, surnamed Μέλαις, 'The Black,' was the brother of Alexander's nurse, Helleniké. C. was made one of Alexander's lieutenants, and saved the latter's life at the Battle of Granicus in 334 B.C. He was made satrap of Bactriana in place of Artabazos in 328. At a banquet, when Alexander was present, he dared to criticise the luxury of the latter's court, and to extol the virtues of Philip. Alexander, who was drunk, killed C. on the spot, and was afterwards overcome by remorse.

Clive, Caroline (1801–73), an authoress, was the daughter of Edmund Meyscy-Wigley, and was b. in London. In 1840 she married the Rev. Archer C. She wrote several sets of poems, signed 'V.' but her best book is *Paul Ferroll*, 1841, a novel.

Clive, Kitty (1711–85), an actress,

and the daughter of William Raftor, a man of good family. About 1727 she came under the notice of Colley Cibber, manager of Drury Lane, and as she showed decided talent for the stage, a place was found for her in the company, where she played Ismenes, the page in *Mithridates*. Not long after this she married George C., a barrister, but they separated very soon after their marriage. She was best as a comic actress, and she took part also in some oratorios owing to her fine voice.

Clive, Robert Clive, Baron (1725-74), Indian administrator, came of an old Shropshire family. Many stories are told of his schooldays, which go far to prove that in this case the boy was father to the man. Though dull at books, he was notorious for reckless courage; and there is the tradition, most delightfully prophetic, that as a lad he formed a small army of boys and levied a tax on the shopkeepers of Market Drayton, which they paid lest otherwise their windows should be broken. In his eighteenth year he received the offer of a writership in the Honourable East India Company's service at Madras, an opening which, needless to say, was as welcome to him as to his parents. He scented adventure in the E., adventure that was to come surely enough, though not quite so soon as he expected. The outward voyage was unduly protracted, and he did not arrive at his destination until late in 1744. The long delay had swallowed up the contents of a meagre purse, and he reached Madras in debt. In that city he knew no one, and was far too shy to take advantage of such opportunities to make acquaintances as did occur. Loneliness and the slenderness of his resources made him so miserable that after a few months sojourn in India he decided to commit suicide, and he desisted only when he had pointed a pistol at his head and twice pulled the trigger without obtaining the desired result. He then examined the weapon, and finding that it was properly loaded, he put it aside, remarking that it was evident from this intervention of Providence that he was intended for something great. Fate did not keep him waiting long. In 1746 Labourdonnais captured Madras, and among many took C. prisoner. The young man escaped, however, to Fort St. David. He now desired to abandon the civil and enter the military side of the company's service, and he applied for, and in 1747 obtained, an ensign's commission. Though he had had no previous training in arms, he showed signs of military genius, and elicited

the commendation of Major Lawrence. A treaty of peace between England and France was signed at Aix-la-Chapelle in Oct. 1748, and C. returned to his former occupation. He was not destined long to remain at his desk. He was given a command, again under Major Lawrence, in the expedition against the Rajah of Tanjore, during which he showed the same bravery that he had previously displayed in the unsuccessful siege of



ROBERT CLIVE

Pondicherry. After the conclusion of this campaign he was appointed commissariat officer to the British troops, and shortly after was promoted captain. He submitted in 1751 a plan for the capture of Arcot, the capital of the Carnatic, and was, to his great delight, permitted to endeavour to carry it out. He occupied the town, and held it for two months, with his 500 men, of whom only 200 were English, against an army of 10,000. At the end of that period the enemy retired. The defence of Arcot, Malleson, the military historian, has said, may be regarded as 'the turning-point in the eastern career of the English.' Though not at the time regarded as so important as, in the light of subsequent events, it is now, C.'s defence made a great reputation for him, which was enhanced by his later achievement in the campaign. C. was in 1753 invalided home, and was welcomed by the court of directors of the

East India Company, who, as a token of the high esteem in which they held him, presented him with a very valuable sword mounted in diamonds, which, very properly and modestly, he declined to receive unless a similar mark of honour was bestowed upon Major Lawrence. He returned to India in 1756, and, after serving for a short time in Bombay, went to Madras, where the news came that Suraj-ud-Dowlah had captured Calcutta and imprisoned the Eng. captives in the Black Hole. C. went forth to retake Calcutta and to avenge the victims of the outrage. He defeated Suraj-ud-Dowlah at Plassey, and dethroned him in favour of Mir Jafier. From 1757 C. was Governor of Bengal until 1760, when he returned to England, where he was received as a popular hero by every one, from the king to the mob. He was elected member of Parliament for Shrewsbury, and in 1762 was created Baron C. in the Irish peerage. Two years later he went out as Governor of Bengal to put the administration on a sound footing. This he did, but in 1766 he had to return owing to ill-health. In England he was attacked for having abused his position, and many charges were brought against him. A parliamentary inquiry was held, and the House of Commons unanimously accepted a resolution that he had rendered 'great and meritorious services to the State.' He *d.* by his own hand, after long suffering severe bodily agony, on Nov. 22, 1774, at the age of forty-nine. C. no doubt often acted in a way that in a twentieth-century official would be regarded as little less than criminal; thus he accepted vast sums from native princes, but that was the custom in his day, when the Englishman in India was not as a rule, and was not expected to be, very scrupulous as to the manner in which he acquired a fortune. On the other hand, he was a just administrator, a great ruler, and a brilliant soldier; and he it was who securely laid the foundation of the British empire in India. His biography was written by Sir John Malcolm, 1836, which work was reviewed by Macaulay, 1840.

Cloaca, in zoology, is the name given to the common chamber in some vertebrates into which open the alimentary canal, the genital and urinary ducts; it is present in all amphibians, birds, and reptiles, in the monotremes and some fishes. In higher mammals the urinogenital orifice and the anus take the place of the cloaca.

Cloacæ, the sewers of anct. Rome. The fact that Pliny called the city 'urbs pensilis' (hanging) shows

to what an extent they undermined it. Ruins of many still exist buried inches underground. The most famous, known as 'Cloaca Maxima,' was built by a Tarquin (sixth century B.C.) to drain the forum which stood on marshy ground between the Palatine and Capitoline hills. It was 14 ft. high and 10½ ft. wide. Under the republic C. were supervised by the censors; under the empire by the 'curatores cloacarum.'

Clocks and Watches Industry. Clock-making used to be the work of one man, and it is traditionally supposed that the Glastonbury Abbey clock was made by one man in the fourteenth century. By the nineteenth century, however, when Eng. clock- and watch-making were flourishing, the work was divided into about forty branches. At this time the movement or working part of the clock was roughly made by a manufacturer and then passed on to the clock-maker to be finished by hand. After 1865 some parts were made and polished by machinery, and the Eng. lever watch became very popular. Watch-makers were divided between the fusee type of watch and the going-barrel watch. Eng. manufacturers favoured the former, but owing to this preference they failed to satisfy the growing demand for reliable, inexpensive watches such as were supplied by Swiss and American manufacturers. This distinction has remained until the present day, when the construction of clocks and watches is done largely by automatic machinery. The American trade has from the first concentrated on the mass-production of clocks and the perfecting of them by machinery, but in England manufacturers are mostly concerned with high-grade clocks. Of cheap clocks Germany and the U.S.A. have the largest manufacture, and Switzerland and the U.S.A. of cheap watches. The Eng. industry has been aided by an import duty, but in spite of this three million complete clocks, of which two-thirds are from Germany, and four million complete watches are imported into England every year, the total average value being £1,200,000. Apart from this there is a considerable trade in parts of clocks and watches. Annual exports from Great Britain average 17,000 complete clocks and 3,000 complete watches, of a total value of £54,000. In addition, there is a re-export of imported clocks and watches, valued at £55,000. One of the latest developments of the clock industry is the perfecting of the electric clock, first invented by Alexander Bain in 1843. In one type electricity is

used to wind the clock, but in another electrical vibrations cause the movement of the pendulum. The clock's errors may be corrected by a system of synchronisation by which a number of clocks are connected electrically to a master-clock. The radium clock is not yet a commercial concern. The action of rays from radium in a vacuum tube containing strips of tin-foil causes the strips to repel each other and then fall back into position at regular intervals, but time-keeping by these means has not yet been devised. Radium, however, is used commercially to illuminate the dials of clocks and watches. See HOROLOGY.

Clodd, Edward (1840-1930), b. at Margate. He began his career in the London Joint-Stock Bank, and held the post of secretary to that bank 1872-1915. He was an ardent rationalist. His chief works are: *The Story of Creation: A Plain Account of Evolution*, 1888; *Myths and Dreams*, 1885; *The Childhood of Religion*, 1875; *The Childhood of the World*, 1873; *Primitive Man*, 1895. He pub. his interesting *Memoirs* in 1916; and his *Royal Institution Lectures on Occultism* in 1922. Died at Aldeburgh, March 16, 1930.

Clodius (or **Claudius**) **Albinus** (d. A.D. 197), whose full name was Decimus Clodius Ceionius Septimius Albinus, was b. at Adrumetum in Africa. He entered the army at an early age, and served with distinction under Marcus Aurelius, especially during the rebellion of Avidius Cassius, A.D. 175. He was raised to the consulate in 176, and appointed to the governorship of Gaul and afterwards of Britain by the Emperor Commodus. On the death of Commodus and that of his successor, Pertinax, 193, Septimius Severus declared Clodius Caesar, in order to secure his neutrality, while he himself marched on Rome. Having there defeated his rival Pescennius Niger, he resolved to get rid of C. also. A great battle was fought at Lugdunum (Lyons), in which Severus was victorious and C. killed.

Clœlia, a Rom. maiden sent as a hostage to Porsenna. After escaping by swimming the Tiber, she was sent back by the Romans to Porsenna, who released her on account of her bravery. She was allowed also to choose other hostages for release, and she chose the youngest. A statue was erected to her in the Via Sacra.

Clog Almanac, an anct. kind of calendar, usually made of wood, though sometimes of metal. It was square in shape, and on it were notched the months and the days, with special marks for saints' days.

It was supposed to have originated in Denmark.

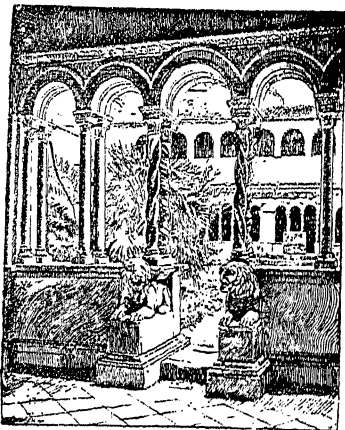
Clogheen, a tn. of Ireland in the co. of Tipperary, about 13½ m. W.S.W. of Clonmel. Pop. 734.

Clogher, a vil. in the S. of co. Tyrone, Ireland, 14 m. S.S.E. of Omagh, on the Clogher Valley light railway. The Protestant cathedral of St. Macartin dates from the end of the eighteenth century. C. also gives its name to a Rom. Catholic diocese, but the bishop's seat is at Monaghan. Pop. 197.

Clogs, shoes worn by peasant people in several countries of the Continent, and also used in the N. of England and parts of Scotland. The uppers are of leather and the soles are made of wood.

Cloisonnée, see ENAMELS AND ENAMELLING.

Cloister (Lat. *claustrum*, an enclosure; Fr. *cloître*), the quadrilateral space, surrounded by an ambulatory or covered passage, to shelter from rain, etc., attached to monastic build-



CLOISTERS OF THE LATERAN

ings and cathedrals, and often also to colleges. The C. was usually built on the S. side of the church, so as to benefit by the sunshine. Canterbury, Chester, and Gloucester have fine examples of Benedictine Cs. In the old days the church would be on one side of the ambulatory and the refectory on the side opposite, whilst E. and W. were the chapter-house and the larders and cellars. Almost invariably the dormitories would be on the upper storey. On the side skirting the quadrangle, pillars and

arches, sometimes decorated with elaborate carving and delicate-patterned traceries, supported the cloistral roof, which was often vaulted. At Gloucester the exquisite fan-traceried vaulting is still in perfect preservation. Besides walking daily in the Cs. for recreation—from the ambulatory at Mont St. Michel they could see on all sides the great Atlantic—the monks used also to hold schools for novices and to paint, carve, and read theology in the recesses or stalls on the inner side. Here, too, they could talk at certain hours. The square grass plot was sometimes unfortunately shut out from view by glazed windows, as at Westminster Abbey. Among the many beautiful Cs. still in existence may be cited those of St. John Lateran at Rome, of Monreale in Sicily, and of Campo Santo at Pisa, where the spacious ambulatories are actually four in number.

Clonakilty, a seaport and market tn. on C. Bay in S.W. of co. Cork, Ireland. It is the terminus of a branch of the Cork, Bandon, and South Coast Railway. Pop. 2961.

Clones, a tn. of Ireland in the co. of Monaghan. It possesses the ruins of an old abbey. Pop. 2401.

Clonfert: (1) A parish on the Allow, in the N. of co. Cork, Ireland. Pop. 7791. (2) A parish and town on the Shannon and the Grand Canal, in the S.E. of co. Galway, Ireland. Pop. 1633.

Clonmacnoise, a par. of King's County, Irish Free State, area 21,918 ac., pop. 1899. Has ruins of the cathedral and other churches, two round towers and was the cemetery of Irish kings.

Clonmel, a municipal bor. and co. tn. of co. Tipperary, Ireland, on the Suir, 130 m. S.W. of Dublin by rail. It is still a tourist centre, and is famous also as the birthplace of Sterne. Formerly the centre for Bianconi's system of jaunting cars (1815). Besides exporting agricultural produce, it has tanneries and flour-mills. Pop. 10,309.

Clontarf, a tn. of Ireland, situated on the Bay of Dublin and in the county of that name. A battle was fought here in 1014, which ended in the Danes being defeated by the Irish. Pop. 4613.

Clonus, a series of spasmodic muscular movements not controlled by volition. The jerks are occasioned by alternate contractions and relaxations of certain muscles and are usually characteristic of an abnormal state of health. Even when nerves are perfectly healthy, clonic spasms may be produced by the sudden stretching of the muscles, and may

vary in degree from contractions of considerable force and amplitude to scarcely perceptible tremors. The term C. is particularly associated with rhythmic and involuntary movements of the ankle, jaw and wrist, and such conditions are known as ankle, jaw, and wrist C. They do not differ in kind, however, from many other movements which are generically termed reflexes. The question of the causation and process of reflex action has received much attention at the hands of physiologists, and the association of different parts of the nervous system with the various reflexes has been well investigated by observation and experiment. Muscular movements may be divided into voluntary and involuntary. Voluntary movements involve a certain degree of consciousness, not only as regards perception of the movements, but also with respect to their origin. The stimulus which evokes a voluntary movement may be a sensation carried to the brain by a peripheral nerve, but the brain process involves a reaction between the new perception and perceptions already existent in consciousness, so that the resulting movement corresponds in only a modified manner with the external stimulus. Involuntary movements, on the other hand, bear a certain definite relation to the stimuli which evoke them; if the same stimulus be repeated, the same movement will follow, unless other nervous forces interfere to modify or inhibit that movement. It may be said, however, that many movements which are usually reflex may come under the dominion of the will if attention be attracted towards them. Breathing, for instance, is usually reflex, and the muscles associated with that function adapt themselves to any variation required by altered conditions without disturbing consciousness, but if the conditions are particularly unusual, or if the trend of thought leads to the subject of breathing, the muscular movements may be consciously directed. The part of the central nervous system associated with voluntary action is the brain, while reflexes constitute the special function of the spinal cord. A reflex is a reaction which is started by a stimulus acting on some nerve; the stimulus is conveyed by afferent nerves to the spinal cord, whence an impulse starts towards appropriate muscles or glands. The spinal cord therefore functions as an exchange, by which certain stimuli are made effective in near or distant quarters. Many reflexes are very complex and have been highly differentiated in the

striving of the organism after economy of effort; the higher the degree of differentiation the greater is the possibility of the reflex being disturbed by cross reflexes or voluntary control. Some reflexes, particularly where nerves are tapped, as it were, on their way to the central system, are peculiarly invariable, at any rate in ordinary health. The absence or modification of such a reflex is therefore often an important indication of a morbid condition otherwise difficult to diagnose. It is in this connection that clonic movements are useful. The occurrence of a reflex when none should be expected argues that certain abnormalities connected with the nervous structure exist, and these abnormalities have gradually been classified in the light of clinical and experimental knowledge. The knee-jerk, for instance, obtained by striking the patellar tendon when the knee is flexed at a right angle, is absent in locomotor ataxia, destructive lesions of the lower part of the spinal cord, diabetes, infantile paralysis, etc. It is increased in tumours of the brain, cerebrospinal sclerosis, after epileptic seizures, etc. Ankle-C. is obtained by sudden flexion of the foot by pressing the hand against the sole. It is rarely manifest in perfect health, and indicates some degree of spinal disturbance. Jaw-C. is also present in health, but is plainly shown if there is sclerosis of the lateral columns of the spinal cord. It is obtained by a firm blow on the lower jaw hanging passively or gently supported by the hand; a series of contractions and relaxations causing jerky movements of the jaw results. Wrist-C. is obtained by pressing the hand backward to extreme extension; it is observable in hemiplegia. There are many other reflexes not of a clonic or rhythmic character which occur or disappear in certain diseased conditions, particularly those associated with the spinal cord. The specific character of C. as distinguished from other reflexes lies in its rhythmic or periodic quality. Rhythm is, of course, present in such reflexes as breathing, walking, and the beating of the heart, but such processes are fairly complex. Rapid rhythmic movements, such as the scratching of its hide by a dog can be produced even when voluntary action is rendered impossible by removal of part of the brain. If the skin of the shoulder be irritated the stimulus is conveyed to the spinal cord, and the afferent nerves carry alternate impulses to the flexor and extensor muscles of the hind-leg, so that an almost perfect rhythm of about four beats to the second can be produced.

It is obvious that in such a movement the contraction of the flexor muscles must be followed by a pause, after which the extensor muscles reverse the movement of the limb. These movements appear to resist fatigue for a long time. Tremulous movements of the limbs seems to argue an irritability of the nerves, causing a rhythmic though feeble contraction and relaxation.

Cloots, or Clootz, Jean Baptiste du Val, Baron von (1755-94), was b. at Guadenthal. He was of Prussian nationality, and took a prominent part in the affairs of the Fr. Revolution. After travelling in Europe, he returned to Paris in 1789, on the outbreak of the Fr. Revolution, and joined the Jacobin Club. In the following year, at the bar of the Assembly, he declared his and others' adherence to the Declaration of the Rights of Man. From that time he assumed the appellation 'orator of the human race,' and took the name of 'Anarcharsis C.' In the year 1792 he added to his revolutionary opinions those of denouncing religion, and became a 'French citizen.' He was also chosen to be a member of the Convention. He was eventually condemned to death by the tribune of the Revolution, and was guillotined on a false charge.

Cloquet, a city in the co. of Carlton, Minnesota, and stands on the N. Pacific and the Great Northern Railway. It is an important centre of the lumbering trade, and it also manufactures paper. Pop. 6782.

Close (Lat. *clausum*, shut), an enclosed space, used in England for the precincts of a cathedral or an abbey. In Scotland and in colloquial Eng. the word is used for a narrow passage leading to a block of tenement houses, to the entrance of a court, or from a main street.

Closed Shop. A term used in America to indicate those shops or factories from which non-union labour is excluded at the insistence of trade-union workers. Such action is not of modern growth, because the guildsmen or craftsmen of the late Middle Ages vigorously insisted in England on the exclusion from their work of workers who were not of their crafts or guilds. The Eng. term corresponding to C. S. is Union Shop.

Close-hauled, the term applied to the general arrangement of the sails of a ship when she is travelling as near as possible to the direction of the wind. Square-rigged vessels when C. make a small angle with the line of the wind's direction, but cutters and luggers can sail very much nearer to it.

Close Times, those seasons of the year during which, by law or by mutual agreement, game, wild-birds, salmon, certain animals, and certain fish may not be shot or caught. These C. T. vary to a certain extent in different countries and localities, but they will generally be found to include the breeding or spawning times of the species in question. In most cases the C. T. in Great Britain and Ireland are fixed by the Game Laws and a series of Wild Birds Protection Acts, of which the chief were passed in 1880, 1904, and 1908, but in some cases sportsmen are ruled by unwritten but equally binding rules. There is, for example, no statutory C. T. for foxes and rabbits, but in practice there is no fox-hunting from April till Nov. 1. Unwritten law likewise fixes the deer-hunting period for stags from about Aug. 12 to Oct. 12, and for hinds from Nov. 12 to the end of March. An Act of 1892 prohibits the sale of hares or leverets caught in Great Britain from March to July, under penalty of a heavy fine, and this has the effect of creating a C. T. In Ireland this period is fixed from the beginning of April to Aug. 12. The C. T. for wild birds in the United Kingdom is from March 2 to the end of July, and certain eggs are also protected under the same Acts. Hares, rabbits, woodcock, snipe, quail, etc., come under the same Act in England, while in Scotland the same season is fixed for deer, and in Ireland for certain other birds. The game laws fix the following times for various kinds of game, all dates being inclusive: black game or heath fowl, Dec. 11 to Aug. 19 (in certain parts Aug. 31); bustard, March 2 to the end of Aug. in England, Jan. 11 to end of Aug. in Ireland, in Scotland no C. T.; grouse, Dec. 11 to Aug. 11 in all parts of the United Kingdom; ptarmigan, in England none, in Scotland, Dec. 11 to Aug. 11, in Ireland Dec. 11 to Aug. 19; partridge Feb. 2 to Aug. 31 throughout; pheasant Feb. 2 to Sept. 30 throughout. Christmas Day and all Sundays are C. T. for game. In Ireland male deer are protected from Jan. 1 to June 9, fallow deer from Sept. 29 to June 9, hares from April 20 to Aug. 12, landrail from Jan. 11 to Sept. 19, and quail from Jan. 11 to Sept. 19. In England and Scotland the two last-named come under the Wild Birds Protection Act already referred to. Otter-hunting lasts from April 15 to Sept. 15. In addition to these general rules, provisions are made by the Secretary of State by which protection may be granted to certain birds in particular localities

at other times on application from the local authorities. The Salmon Fisheries Act, fixing the C. T. in England and Wales for nets from Sept. 1 to Feb. 1, and for rods from Nov. 2 to Feb. 1, has been varied considerably in different parts of the country, but it always begins for nets not later than Nov. 1, and lasts for a minimum of 154 days. For rods it must not begin later than Dec. 1, and the minimum period is ninety-two days. In Scotland the C. T. for salmon, usually lasting from Aug. 27 to Feb. 10 for nets, and from Nov. 1 to Feb. 10 for rods, must not be less than 168 days for nets, either in England and Wales, or in Ireland. There are also weekly C. Ts., including Sunday, which vary from twenty-four to forty-eight hours. The Fresh-water Fisheries Act of 1878 fixed a C. T. for fresh-water fish not caught in private waters from mid-March to mid-June, except for certain specified parts of the country. Crabs and lobsters under a certain size (crabs $4\frac{1}{2}$ in. across back, lobsters 8 in. in length) may not be sold, and protection is also given to soft crabs and crabs with spawn. The protection of oysters varies according to local regulations. A general C. T. for deep-sea oysters is fixed by the Fisheries Act of 1877 in Great Britain from June 15 to Aug. 4. There are game laws and various regulations for the protection of animals in most countries, sometimes of an extremely stringent nature.

In the U.S.A. game is protected at certain seasons of the year, not only by Federal laws, where the Congress has power to legislate, but also by separate laws in all of the forty-eight states. The Federal Gov. has especially sought to protect the birds that are hunted on the sea-coasts. In many states there are laws limiting the hunting of quail to a few months in the autumn. There are some seventy-five bird reservations where the wild creatures are safe from the hunters. In the National Forests antelope, deer, mountain sheep, elk, black bears and grizzlies are also protected. The authorities are thus trying to preserve some of the wild life of the country, having learned their lessons from the ruthless butchery of the bison, which used to roam the prairies of the west in thousands. To-day in the U.S.A. only a thousand or so survive, being cared for either in reservations or in zoological gardens.

Closure, or **Clôture**, in parliamentary procedure a method of putting an end to a debate which compels the House to decide upon the matter under discussion. The C. was first authorised by the Urgency Rules of

Feb. 3, 1881, upon a motion to vest in the Speaker the powers of the House for the regulation of its business. The obstructionist methods of the Irish Nationalist members during the debates on the Protection of Person and Property (Ireland) Bill, the Prevention of Crimes (Ireland) Bill, and the Place Preservation (Ireland) Bill, induced the House to carry the motion, which was afterwards permanently established by a standing order in 1882. That order provides that the opinion of the House may be taken forthwith upon any motion, 'That the question be now put'; the C. may be moved either at the conclusion of a speech or whilst a member is addressing the House, and, in the latter event, it intercepts any motion which it was the Speaker's intention to submit. The Speaker (or Chairman of Ways and Means) has an absolute discretion in allowing a C. motion to be put; but in practice he only intervenes where such a motion is in his opinion an abuse of the rules of the House or an infringement of the rights of the minority. Analogous to the C. are the motions 'That certain words in the clause stand part of the clause,' or 'That a clause stand part of (or be added to) the Bill'; such motions override all power of amendment. C. may also be moved at the moment for 'interruption of business'—that is, at the expiration of the time fixed for the transaction of certain business when the Speaker adjourns the debate and vacates the chair to make his report to the House. Reflections on the vote of C. are out of order, as are also questions to Ministers respecting C. The presence of more than one hundred members is required to make the C. vote effectual, or twenty in the case of the C. being put in a Standing Committee. A far more drastic method of curtailing the length of a debate is that of C. by compartments, called also the 'Guillotine.' This is a device whereby a definite period or periods may be set apart by the rules of the House for the discussion of the various stages and portions of a Bill; at the expiration of each period of time the discussion is automatically closed, whether concluded or not, without the leave of the Speaker or Chairman being required, and the majority in the House carry that portion of the Bill. It was first used in 1887 on the occasion of the Common Law Procedure (Ireland) Bill; it was also used in the debates on the Home Rule Bill, 1893, and the Education Bill, 1902. From the return of the Liberals in 1906 it became a characteristic feature of parliamentary procedure.

Clothaire I. (558-561 A.D.), King of

Gaul, was one of the four sons of Clovis, who, at his father's death, received his share of the kingdom, including the cities of Soissons, Cambrai, and Laon. By arranging for the murder of his brother's children, he secured Tours and Poitiers in 524, and ten years later, after the fall of Burgundy, acquired Grenoble. In fact his whole reign was one of annexations. At the death of Childbert, his brother, with whom he had warred against the Visigoths, he became king of all Gaul (558), and he also ruled over most of Germany and exacted tribute from the Saxons. He *d.* of remorse, because he had burnt alive his rebel son, Chram, with his wife and children.

Clothaire II. (*d.* 629), after varying fortunes of war, finally became king of the whole Frankish kingdom in 613. The many concessions he made account for the comparative tranquillity of his rule. To the Burgundian nobles he gave the option of a special mayor, and to his own barons he allowed some freedom to draw up laws. In his reign unjust taxes were repealed.

Cloth, *see* FABRICS, TEXTILE; CLOTH MANUFACTURE.

Clothilde, St. (475-545), the daughter of Chilperic, King of Burgundy, and the wife of Clovis, King of the Franks. She exerted great influence over her husband, and persuaded him to become a Christian. Together they built the church of the Holy Apostles at Paris, afterwards called St. Geneviève, in which they were both buried. At the death of Clovis, C. retired to the abbey of St. Martin at Tours.

Cloth Manufacture and Finishing. All cloth on leaving the loom presents a loose and thready appearance. The type of weave, however, is carefully chosen with a view to the use to which the material is to be put, but the essentials of weaving do not vary with the raw materials used, whether they are vegetable products—cotton, jute, artificial silk, etc.—or animal products—wool, camel-hair, alpaca, silk, etc. Metal threads of gold and silver are also used for decoration, and asbestos fibres for fireproof curtains, etc. (*See under* FABRICS, TEXTILE.) Cloth is manufactured at variable widths according to its uses, but modern manufacturers favour broad looms, wide fabrics being economical in use. Besides width, weight is an important factor in the manufacture of cloth, especially of woollens and worsteds, and cloth also undergoes tests to estimate its tensile strength. After the cloth is woven, the finishing processes to which it is then submitted vary according to the material. The purpose of finishing is to smarten the cloth and to bring out the valuable

properties peculiar to the stuff of which it is made. If nothing but cleaning and pressing is needed, the appearance of the cloth is not very much altered from when it first left the loom, but generally the alteration is considerable. The first stage in the finishing process is to remedy all defects in the weaving. The examination of the cloth is called 'perching,' and this is followed by another exercise, called 'picking,' which, as the name implies, means picking out all foreign matter such as hairs, straws, etc. 'Burling' is to ensure that the cloth is perfectly smooth and free from knots, for every knot has to be unravelled and every missing thread replaced by hand. The grade of quality obtained is decided by the purpose for which the cloth was woven. It is nearly always necessary to pass the cloth through a bath of soapy water, to wash out any dirt or oil accumulated during weaving. The washing softens the cloth and brings out a fuzzy 'nap' which may be removed by singeing. In some woollen fabrics, however, the surface nap is desirable, and may be further brushed up with a wire brush. One of the processes through which cotton fabrics may be passed is known as 'beetling.' This, which can be done by machinery, consists in hammering the surface of the cloth to close up the threads and produce a hard bright finish. A similar process applied to woollen fabrics is 'milling.' After scouring, the fibres of the soapy wool curl up, and they are felted together and the cloth is thickened by pressure and friction applied alternatively. Wool can also be put through a process of 'raising,' which is effected by the teasles in a machine called the 'raising-gig.' The teasles raise a pile on the surface of the cloth, either an erect pile, termed 'velvet,' or a laid pile, smoothed in one direction. Raising gives an increased softness, conceals the threads and subdues the colour and patterns of the cloth. Usually the cloth is 'milled' before raising, but if the pile is raised immediately after the cloth has been scoured, it becomes much softer. Union fabrics, woven with cotton-warp and wool-weft, undergo an additional treatment called 'crabbing,' the purpose of this being to straighten out the cotton threads and submerge them beneath the woollen surface of the weft. If during these processes the length and breadth of the cloth have been altered, the cloth is brought back to the required dimensions by 'stentering.' The stenter is a machine on which the cloth is stretched and

straightened out. Stentering is particularly applied to light cotton cloths which require dressing or which have been mercerised. If it is required to stiffen the cotton, this is done by applying a starch mixture while the cloth is being passed through a mangle. The final finishing treatment is to press the cloth and, if a lustrous surface is desired, to apply heat and moisture at the same time. In addition to finishing in the sense of cloth-development, the work of preparing cloth includes bleaching, dyeing, and printing. All cloth on leaving the looms has a dull colour, and is spoken of as being 'in the grey.' Cotton goods are bleached with chlorine, but wool is generally passed through sulphur fumes, and if further whiteness is required peroxide is used. Silk can be whitened by boiling in soap solution. Coloured cloth is either made from dyed yarn or else is dyed in the piece. Dyeing machines are generally made to take a number of pieces at once, and the cloth is immersed in a heated solution. Cotton and silk cloths may be readily printed with patterns and designs. Printing is done by a machine consisting of a revolving drum with sometimes as many as twenty rollers, each having a separate trough of colour, and the cloth receives an impression from each roller which is engraved with the desired pattern. For the treatment of separate stuffs see under COTTON, WOOL, SILK, etc. See also S. R. Trotman and P. L. Thorp, *Principles of Bleaching and Finishing Cotton*, 1927; R. Beaumont, *The Finishing of Textile Fabrics*, 1926; E. Midgley, *The Finishing of Woven Fabrics*, 1929; J. A. Hunter, *Cloths and the Cloth Trade*, 1926; H. Greenwood, *Handbook of Weaving and Manufacture*, 1926.

Clotho, one of the Fates. See MOIRÆ.

Cloud, a mass of mist consisting of minute globules of water formed of condensed aqueous vapour floating in the atmosphere. Sometimes the condensed vapour is solidified into minute fragments of ice or snow, this being particularly the case with cirrus, cirro-stratus, and cirro-cumulus Cs., where the refraction of light by the ice-crystals often gives the appearance of a halo. The first attempt at a complete classification of Cs. was made by J. B. Lamarck in 1801, but his terms were not well chosen and were not used much. Complete success, however, was obtained by Luke Howard, and his classification, with slight modifications, is now universally recognised. It was expounded in his *Essay on the*

Modification of Clouds, 1803. Howard recognised three primary forms: the Cirrus, Stratus, and Cumulus, and four secondary or compound forms: the Cirro-stratus, Cirro-cumulus, Cumulo-stratus, and Nimbus. This arrangement of types was generally recognised, and in 1891 it was adopted as the basis of a new classification. In 1896 a full description of the meaning of the terms adopted was given, and, since in all previous schemes insufficient or indefinite description had frequently led to difficulty in the identification of the various types, an atlas was added which fully illustrated the text. This *International Cloud Atlas* was drawn up by Messrs. H. H. Hildebrandsson, A. Riggenbach-Burckhardt, and L. Teisserenc de Bort. The classification adopted by the international conference of Munich, 1891, is here given, with a description of each type:—

A. UPPER CLOUDS, average altitude, 9000 metres (29,520 ft.).

(1) *Cirrus* (Ci.), most frequently appearing in dry weather, consists of detached Cs., of delicate and fibrous appearance, taking the form of large feathers extended in the sky. They are generally arranged in belts which cross a portion of the sky in huge arcs, converging by an effect of perspective towards one or two points on the horizon. The belt of cirrus Cs. often includes others of the cirro-stratus and cirro-cumulus types. They are commonly known as mare's tails.

(2) *Cirro-stratus* (Ci.-S.), a thin, whitish sheet, sometimes completely covering the sky and giving the whole a whitish appearance, sometimes giving the appearance of a tangled web. Solar and lunar haloes are formed by this type of C., and its appearance generally coincides with bad weather. When entirely covering the sky it is sometimes called a *pallium* (Lat. cloak).

B. INTERMEDIATE CLOUDS, altitude from 3000 m. (9840 ft.) to 7000 m. (22,960 ft.).

(3) *Cirro-cumulus* (Ci.-Cu.), generally seen in dry weather, consists of small detached globular masses or white flakes without shadows, generally arranged in groups or lines. It forms the well-known 'mackerel-sky.'

(4) *Alto-cumulus* (A.-Cu.), consists of large white or grey globular masses, arranged in lines or groups with slight shades. Often these Cs. are so close together that their edges appear confused. At the centre of the group the detached Cs. are generally large and compact, with a tendency to change to S.-Cu. At the edges they are

flaky, with a tendency to become Ci.-Cu.

(5) *Alto-stratus* (A.-S.), appearing in wet weather, forms a thick grey or bluish sheet, through which the sun appears as a brilliant patch. This type gives rise to coronæ but not to haloes. Like the cirro-stratus, it goes through various changes, but its altitude had been fixed at one-half that of the Ci.-S. according to measurements taken at Upsala.

C. LOWER CLOUDS, altitude about 2000 m. (6560 ft.).

(6) *Strato-cumulus* (S.-Cu.), a fair-weather type, appears in large globular masses or rolls of dark C., which often cover the whole sky, giving it a wavy appearance. This occurs especially in winter. As a general rule, the layer is not very thick, and patches of blue sky can be seen here and there. It is distinguished from the nimbus by its globular or rolled appearance, and by the fact that it does not bring rain.

(7) *Nimbus* (N.), or 'rain-cloud,' consists of a thick and widely-extended layer of dark Cs., shapeless and ragged at the edges, from which rain or snow is falling. An upper layer of Ci.-S. or A.-S. can generally be seen through openings in these Cs. If a lower layer of the N. begins to separate into shreds, or if there are a number of small loose Cs. floating beneath it, they are described as the *fracto-nimbus* (the 'scud' of sailors).

D. CLOUDS OF DIURNAL ASCENDING CURRENTS.

(8) *Cumulus* (Cu.), commonly known as the 'ball of cotton,' or 'wool-pack,' consists of convex or conical heaps, rising from a horizontal base. The apex is on the average at an elevation of 1800 m. (5904 ft.), and the base at an elevation of 1400 m. (4592 ft.). These Cs. seem to be formed by a diurnal ascensional movement which is usually observable. When the C. is opposite the sun, the surfaces presented to the observer are brighter than the margins of the protuberances on the dome or cone; when the light falls on the C. from one side, there are deep shadows, but if they are on the same side as the sun, the edges only appear bright, the rest being dark.

(9) *Cumulo-nimbus* (Cu.-N.), the 'thunder,' or 'shower C.,' has an apex which varies in elevation from 3000 m. (9840 ft.) to 8000 m. (26,240 ft.), and a base with an average height of 1400 m. (4592 ft.). It has the appearance of heavy mountainous masses of turreted Cs., with a screen of fibrous Cs. above, known as the false cirrus. Underneath, the Cs.

have an appearance similar to the nimbus. Local showers of rain and hail fall from the base. The front of large thunder-Cs. often present the appearance of a large bow spread over a part of the sky which is uniformly brighter in colour.

E. HIGH Fogs, elevation under 1000 m. (3280 ft.).

(10) *Stratus* (S.), a horizontal sheet of lifted fog. When it is broken up into disordered shreds by the wind or by the tops of mountains, it is distinguished by the name of *fracto-stratus*. Additional accuracy of definition is secured by the provision which the international scheme makes, that a stratus or nimbus which has taken a lumpy form shall be described by the adjective *cumuliformis*, and if protuberances downwards appear on the base, by the prefix *mammato*. More elaborate schemes giving greater accuracy in detail have now been issued, but these are only additions to the above scheme, which is in universal use. The best known of these supplementary classifications is that of A. W. Clayden, *Cloud Studies* (1905).

Cloudberry, or *Rubus Chamemorus*, a species of Rosaceæ nearly allied to the bramble. The fruit is excellently well-flavoured when newly gathered, and in colour it is orange-yellow. The plant is to be found in turfey Alpine bogs, and is met with on Scottish mountains.

Clouet, François (c. 1510-72), a Fr. painter, son of Jean C. the Younger. He succeeded his father in the twofold office of *valet de chambre* and painter-in-ordinary to the king in 1545. There is a portrait of François II. as an infant in the Musée d'Anvers, and several of his paintings are in the Louvre and the Berlin Museum.

Clouet, Jean, the Younger (c. 1485-1545), a Fr. painter. He became painter-in-ordinary to François I. and also his *valet de chambre*. He was an excellent portrait-painter, and executed portraits of all the members of the royal family. One of his pictures of Francis I. on horseback has been attributed to Holbein.

Clough, Arthur Hugh (1819-61), an Eng. poet, b. at Liverpool. In 1822 his father, a cotton merchant, emigrated to Charleston, S. Carolina, U.S.A., with his family. In 1828 C. returned to England to school at Chester; from there he passed to Rugby, then under Dr. Arnold, and to Balliol College, Oxford. In 1842 he was elected to a fellowship at Oriel College. Oxford at this time was in the throes of fierce theological controversy, and C. fell for a time under the influence of Newman's High

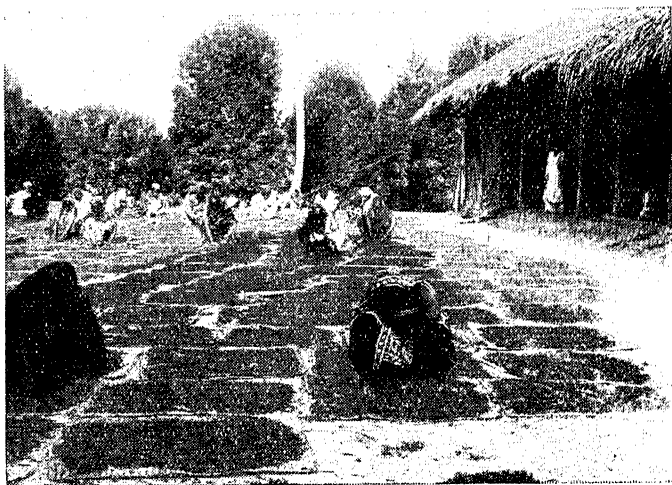
Church principles; this was followed by a period of scepticism, and in 1848 he felt called upon to resign his post. Then he travelled for a time, and was in Paris during the revolutionary movements of 1849, and at Rome during its siege by the Fr. From 1849 to 1852 he was principal of University Hall, London. In spite of the friendship of Carlyle, he disliked London so much that he resigned his post and sailed for America, but was recalled in 1853 by the offer of an examinership in the Education Office. In 1854 he married, and in 1856 was appointed secretary to the commission for examining scientific military schools on the Continent. In 1848 he pub. *Bothie of Tober-na-Vuolich*, a long vacation pastoral in hexameters which excited great admiration; in 1849 a collection of poems, called *Ambarvalia*, in conjunction with his friend, Thomas Burbridge. In the same year he wrote *Amours de Voyage*, a novel in verse, at Rome; *Dipsychus*, a satire, at Venice, 1850; and *Mari Magno, or Tales on Board*, a series of idylls, 1861. *Plutarch's Lives* (1859) was a revision of Dryden's and other seventeenth century translators' edition of Plutarch. His work contains much deep thought and clever experiments with metres, but, except in the case of a few of his lyrics, never rises to great worth or beauty. C. is the subject of Matthew Arnold's beautiful elegy, *Thyrsis*. See S. Waddington's *Arthur Hugh Clough: a Monograph*, 1883, and a collection of C.'s poems, 1862.

Clovelly, a fishing vil. of N. Devon, 11 m. W.S.W. of Bideford in the Barnstaple parl. div. of Devonshire. It is situated in a cleft of the rocks, sheltered on three sides by thick woods and in the midst of magnificent scenery. Its main street, composed of rough steps between white-washed houses, descends 400 ft. to a rude little pier. C. is described by Dickens in *A Message from the Sea*, and Chas. Kingsley spent part of his boyhood here, his father being rector for four years. There is an anct. British encampment a mile away. Pop. 634.

Clover, the name given to various species of *Trifolium*, the leguminous genus to which belong the shamrock and trefoil. C. was introduced into the agriculture of Great Britain about the sixteenth century from the Low Countries, where it had long been cultivated as green food for cattle in situations where natural pastures were scarce. The species are annual, biennial, or perennial plants, and of these the biennial produces the richest crop. Red C. is the most approved variety, and is usually

sown with barley or oats sometimes among wheat or rye in spring. The first crop is generally mown and made into hay, which must be perfectly dry before it is stacked, and in winter it provides a very nutritious food for cattle. White C. is a perennial which grows rapidly and forms excellent pasture, especially for sheep; a light calcareous soil is best adapted for its growth. It is also valuable to man as a source of honey. Another perennial C. is the cow-grass, which is found in all rich meadows, and is often sown in conjunction with white C. T.

about 40 ft. in height, with large oval leaves and small flowers, produced in great numbers in cymes, which become red when ready for picking. The entire plant has an aromatic odour. The buds, when gathered, are a little over half an inch long, and consist of a cylindrical calyx, at the end of which are four extended sepals and a ball formed by four unopened petals. They are dried either in the sun or by wood smoke, and then become of a reddish-brown colour. They have a very powerful odour and a hot and acrid taste, and on pressure



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CLOVES SPREAD TO DRY

minus, the lesser yellow trefoil, and *T. procumbens*, the hop trefoil, are also valuable varieties found in good pastures. The only annual C. which is cultivated is *T. incarnatum*, a species which has been brought from the East. The Italian rye-grass, *Lolium perenne Italicum*, is often sown with it and will grow as rapidly; it is a good corrective of the heating qualities of C. hay. The principal use of this C. is to raise very early food for ewes and lambs.

Cloves (Sp. *clavo*, Fr. *clou*, a nail), the dried unexpanded flower-buds of the clove-tree (*Eugenia caryophyllata*), a plant belonging to the order Myrtaceæ, a native of the Molucca Is. The tree is an evergreen, growing to

exude a volatile oil, of which they contain a large proportion, about one-fifth of their entire weight. C. are mainly used for flavouring in cookery and confectionery, and also to preserve clothing from moths. The essential oil is extracted by means of repeated distillation with water, and when carefully prepared is of a pale yellow colour, later turning to brown, and with the taste and odour of C. It is known to the pharmacopœia as *Oleum caryophylli*, and is a mixture of eugenol ($C_{10}H_{12}O_2$) and a hydrocarbon ($C_{15}H_{22}$). The oil is soluble in alcohol, ether, and fixed oils. It is used in medicine as a flavouring agent and to prevent nausea and griping caused by purgatives.

Its volatile qualities make it valuable to relieve toothache, and it is also used as a local anæsthetic. C. are now chiefly cultivated in Amboyna, Zanzibar, Pemba, Java, Sumatra, Réunion, and the West Indies. The Dutch long held the monopoly of clove-growing in the Moluccas.

Clovis, Clodoveus Chlodwig, the name of two Merovingian kings of the Franks:

Clovis I. (481–511) was b. about 465, and succeeded his father, Childeric, as king of the Salian Franks, whose capital was Tournai, in the modern Hainault. In 486 he overthrew the Gallo-Romans under Syragius, near Soissons; in 493 married Clotilda, a Christian Burgundian princess, and in 496 embraced her faith. In 507 he defeated and killed Alaric II., the Arian king of the Visigoths, at Vouglé, but was checked at Arles by Theodoric, king of the Ostrogoths. He then settled in Paris, where he d. His chief aim was a united Frankish kingdom.

Clovis II. (638–56), b. in 633, succeeded his father, Dagobert I., as king of Neustria and Burgundy. In 656 he procured the assassination of the usurping king of Austrasia, annexed his dominions, and thus became king of the whole Frankish empire.

Clowes, Frank (b. 1848), a British chemist, who held the post of Emeritus Professor of Chemistry and Metallurgy, University College, Nottingham, and Chemical adviser to the London County Council. Among his publications are: *Text Book of Quantitative Analysis* (9th ed.), 1891; *Elementary Practical Chemistry*, parts i. and ii. (5th and 6th ed.), 1907; *Experimental Bacterial Treatment of London Sewage*, 1904.

Clowes, William (c. 1540–1604), an eminent Eng. surgeon in the reign of Elizabeth. He was surgeon at St. Bartholomew's Hospital, served in the Netherlands with Leicester, and took part in the defeat of the Spanish Armada, becoming surgeon to the queen later. He wrote several books, the chief of which are *The Approved Practice for all Young Surgeons*, 1591, and *A Treatise on the Struma*, 1602.

Clowes, William (1780–1851), the joint founder with Hugh Bourne of Primitive Methodism, was a native of Burslem, who came to live at Tunstall. Here he worked as a potter and gained a reputation as an excellent dancer. Attracted by the open-air meetings of Bourne, which differed from Wesley's 'camp meeting' in having both prayers and singing, he early joined a Methodist class, visited the country cottages as an evangelist,

and held prayer meetings and love-feasts in his home. C. supported Bourne in his efforts to hold religious meetings, which should persuade men to renounce their parish wakes and the drunkenness and other vicious habits there practised. The new brotherhood, which had at first availed itself of Wesleyan Methodist protection, definitely repudiated all connection with Wesleyans in 1810. Even C., who had leanings towards the older sect, was cut off from his church in 1808 and 1810 for officiating at camp meetings in Ramsor. In 1811 he became the preacher at a chapel in Tunstall of a small society of Primitive Methodists who had first met together in a kitchen. After 1827 C. gave up circuit work, but continued his mission of evangelisation till his death. He was a man of fine presence and engaging disposition, and his strong personality, with which was combined a fine and enthusiastic delivery, secured many converts to his cause. The influence of the movement to which C. gave his life is well reflected in the works of George Eliot, George Borrow, and Arnold Bennett.

Clowes, Sir William Laird (1856–1905), a British naval writer and historian. He gained his first knowledge of naval affairs on the staff of the *Army and Navy Gazette* in 1882, and served as naval correspondent successively of the *Daily News*, 1885; *The Standard*, 1887–90; and *The Times*, 1890–95. His series of articles, under the pseudonym 'Nauticus,' in the *Daily Graphic* (1893), entitled 'The Needs of the Navy,' had an enormous influence on public and official opinion. In 1891 he had been largely instrumental in the foundation of the Navy Records Society, and between 1897 and 1903 he compiled *The Royal Navy: its History from the Earliest Times*, in collaboration with Sir Clements Markham and others. Among his other works are: *Black America: A Study of the Ex-Slave and his Late Master*, 1891; *The Great Peril*, 1893; *The Naval Campaign of Lissa*, 1901; *The Mercantile Marine in War Time*, 1902; *Four Modern Naval Campaigns*, 1902. He was part author of *Social England* (1892–97), and founded and for some time edited the *Naval Pocket Book* (1896 and annually).

Clown, a buffoon, formerly attached to the households of nobles, now a comic character in a pantomime. See JESTER.

Cloyne, a market tn. of c. Cork, Ireland, 15 m. E.S.E. of Cork. It gives its name to a Rom. Catholic diocese, the cathedral of which is at Queenstown, but it has a Protestant

cathedral of its own, founded by St. Colman in the sixth century. Opposite the cathedral is a splendid and well-preserved round tower which rises to a height of 90 ft. Pop. 756.

Clubbing, or Club-root, a disease which often attacks the roots of turnips, cabbages, and other cruciferous plants, usually the result of improper cultivation. It is due to the ravages of a slime-fungus, *Plasmodiophora brassicae*. It causes the host plant to send out nodular outgrowths from the root with subsequent gradual decay of the plant itself; the skin becomes broken and scabbed, in this way differing from 'Finger-and-Toe' (dactylorhiza) disease, which is rather a gradual degeneration of the plant than a disease; in this case the skin remains unbroken. Lime is the best disinfectant against C., because the spores of the slime fungus cannot germinate in it or penetrate it. Any cruciferous plant can spread the disease, so it is not safe to grow them in soil that has once been infected, unless it is previously thoroughly dressed with lime. The spores will lie dormant for several years if no suitable host presents itself, but germinates actively as soon as any crucifer is present.

Club-foot (*Talipes*), a deformity of the foot depending on contraction of certain muscles or tendons. It may be congenital or acquired. If congenital, the cause may be malnutrition or a long-sustained pressure upon the foot in the womb. Many cases of the congenital defect, however, submit to early treatment, and no further evidence of spinal lesion has appeared. When the deformity is acquired, it is almost invariably the result of infantile paralysis; certain muscles retain their function, and their prolonged contraction is followed by shortening of the ligaments connecting the bones. The varieties of C. are: (1) *Talipes equinus*, where the subject walks upon the fore part of the foot, the heel not touching the ground; (2) *Talipes varus*, where the outer edge of the sole touches the ground, the foot being turned inwards; (3) *Talipes calcaneus*, where the heel only touches the ground, the toes being pointed upwards; and (4) *Talipes valgus*, where the subject walks upon the inner edge of the sole. The former two are the congenital types, and are often combined, when the deformity is known as *Talipes equino-varus*. The latter two are nearly always acquired. Somewhat similar conditions are *Talipes cavus*, where the bony arch is unusually concave, and *Talipes planus*, where the bony arch has been too weak to

bear the weight of the body. This defect is popularly known as flatfoot, and is often developed through much standing, particularly in poorly-nourished persons. Treatment of C. should, above all, be prompt. If it is congenital, efforts should be made by constant manipulation to encourage the foot to take up a normal position. If this is unsuccessful, it may be necessary to separate the contracted tendons by surgical operation. The foot is then kept immovable in the normal position by being set in plaster of Paris until the tendons and ligaments have grown to the required extent. The most satisfactory cure is that of Dr. Phelps of New York, whose operation removes the deformity by increasing the length of the concave borders as in cuneiform osteotomy.

Club-hand, a deformity of the hand similar to that of club-foot. The hand is permanently bent at the wrist, by contraction of the flexor muscles, or is bent backwards, as by contraction of the extensors. It is a result of poor nutrition, and is often associated with other deformities. The fingers of the affected hand are weak or useless.

Clubs, associations of people not united together by ties of kinship. All through Gk. history there were both oligarchic and democratic *εταίρεια* or political organisations among the people. At Rome associations similar to the latter were called 'sodalitates.' Thus about 204 B.C. a 'sodalitas' was formed for the worship of Mater Magna, and under the empire the deification of Augustus and other emperors was promoted by provincial 'sodalitates.' The 'collegia opificum' of the republic corresponded to the mediæval trade guilds. In Cicero's day these had been supplanted by the 'collegia compitalica' or 'sodalicia,' which were political institutions finally suppressed by Cæsar as a public menace. The most obvious purpose of C. to-day is the promotion of social intercourse, but many C. have been formed for the serious discussion of politics, literature, science, and art. The meetings at the Mermaid Tavern in Bread Street, inaugurated by Sir Walter Raleigh, were gatherings of literary friends fond of good-fellowship, who would sit together over their cups and discuss books and men till daybreak. It was an illustrious company who passed their evenings at the Mermaid, including Shakespeare, Beaumont, and Fletcher, and many another Elizabethan playwright. Some of the Stuart C. were professedly political, as for example the Rota and the Calves Head C.

(founded 1659 and 1693). Addison was a member of the famous Kit-Kat C. (1700), and in the *Spectator* he refers to the coffee-houses which were the haunts of men of very varied tastes; one coffee-house was reserved for Whigs, another for lawyers, and a third for men of letters. The Tories used to fraternise at White's Chocolate House (1698), and 'The Club' (1764) was the resort of the most talented men of the times. There are now upwards of a hundred C. in London which are distinguished for their excellent traditions and organisation. Among them may be mentioned the Carlton (1832) and Constitutional (1840), both Conservative; the National Liberal (1881) and the Reform (1837); St. James's (1857), frequented by diplomats; the Garrick 1831, for artists and actors; the Travellers' (1819), and the Turf, (1868). Neither the Cobden (Free Trade, 1886) nor the Eighty (Liberal, 1880) has C. houses. The Kildare Street C. of Dublin (1790) and the New C. (1787) of Edinburgh vie in excellence with those of the metropolis. A social club for American women in London was estab. in 1899 with the title of the American Women's Club; and in 1919 the American was founded, with headquarters at 95, Piccadilly, London. Continental C. are often centres for gambling as well as for concerts, plays, etc. The modern C. is not complete without its dining, smoking, newspaper, writing, billiard, and drawing rooms. The Athenæum (1824) possesses a unique library, and the Garrick a fine collection of dramatic pictures. New members are usually elected by a ballot of the whole C., or by a chosen committee. Some C. are reserved for gentlemen, others for ladies, whilst in a few both sexes are admitted on equal terms. In this connection, it may be noted that the Authors' Club (1891) strictly excludes women, while the Writers' Club, also estab. in 1891, admits men only as guests. The University of London (1914) is open to all graduates. The most patronised of the last type are the Albemarle and the Sesame, whilst the Empress (1897) and the Lyceum (1904) are open only to women. Annual subscriptions, entrance fees, and profits derived from the sale of provisions and wines consumed within the house are the main source of revenue. Since the Great War several C. have sprung up as a direct after-effect, e.g. nursing or service C.; while several women's C. have been founded since the complete political emancipation of the sex. The Cowdray (1922) and the United Nursing Services

(1921) are both C. for women nurses. The Royal Air Force (1917) in Piccadilly is open to flying officers of the R.A.F. (including ex-officers of the R.F.C. and R.N.A.S.). The Ladies Imperial (1923) is a social and Conservative C., while the Liberal Women's C. is for those of the opposite political opinions. The English-Speaking Union and the Overseas League both possess excellent premises and a large membership of both sexes on each side of the Atlantic. The Connaught (1921) is open to public school men, either of professional standing or in one of the services, and the Stadium (1922) is a prominent sports C.

In the U.S.A., C. do not seem to have been established till after the War of Independence. Perhaps the earliest in point of date was the Hoboken Turtle C. (1797) which still survives. Of modern New York C. the Union was established in 1836, while other important C. are the Century Association (1847), the Knickerbocker (1871), the Lotos (1870), the Manhattan (1891), the Metropolitan (1891), the Union League (1863), and the University (1865). The Union League C. was formed by members of the U.S.A. Sanitary Communion, and is the C. of the Republican party leaders. The Manhattan and the Democratic C., which latter is allied with the local organisation of Tammany Hall, are the corresponding democratic C. The Knickerbocker C. was founded by descendants of early settlers, the University for college graduates only. The Lotos is composed of journalists, artists, actors, and other devotees of the artistic and scientific world. The Lambs' C. (1874) was formed for 'the social intercourse of members of the dramatic and musical professions with men of the world.' Then there are the Sorosis (1868), a women's C., the New York Bar Association, the Engineers' C., the New York Yacht C., the New York Athletic C., the Riding C., the Catholic C. of New York, and the C. of Harvard, Yale, and other universities. All are splendidly housed and appointed—especially the University C.—and their hospitality is proverbial.

The tendency of inferior C. and of some C. for working men to degenerate into mere drinking, and sometimes gambling saloons, led to their inclusion in the Licensing Act of 1902. The terms of this Act, designed above all to check the private sale of intoxicating liquors, apply indifferently to all C. Not only must every C. register its name, object, membership, rules, hours of opening and closing, etc., but heavy penalties are

attached to the traffic in liquor at an unregistered association or to granting habitual facilities to any one to become a member within forty-eight hours of nomination.

Clunes, a tn. of Talbot co., Victoria, Australia, 97 m. N.W. of Melbourne by rail. It is in the gold-mining dist. opened up in 1851, and is also the centre of an agricultural and pastoral industry. Pop. 1225.

Cluny, a tn. on the Grosne, 14½ m. N.W. of Mâcon by rail, in the dept. of Saône-et-Loire, Central France. A village in 910, the year of the abbey foundation, it owed its later importance entirely to the C. monastery. The fame of the order of Cluniac Benedictines is due to the greatness of its abbots, who from 910 to 1157 were, with one exception, conspicuous alike for their piety and strength of will. Odo, the second abbot, made C. the centre of a great monastic revival. The result of his work and that of his successors was that, by 1150, 314 monasteries in all parts of Europe had embraced the C. régime, and were completely subject. The order declined rapidly after the death of Peter the Venerable in 1157, so that in 1528 the monastery fell into 'commendam,' and in 1790, after a regrettable schism between the Reformed and Unreformed, the order was finally abolished. As commendatory abbots both Richelieu and Mazarin had initiated projects of reform. Pop. 4260.

Clupeidæ, a family of malacopterygious fishes, contains many well-known species, such as the anchovy, herring, pilchard, and sprat. They have scaly bodies and a naked head, and the species inhabit temperate and tropical seas near the coast.

Cluseret, Gustave Paul (1823-1900), Fr. soldier and politician. He served in the Crimean War, as a *garde mobile* in the Revolution of 1848, in several expeditions in Algeria under Garibaldi in 1860, and in 1861 on the side of the Federals in America. On his return to France he became a member of the 'Internationale,' and on the proclamation of the Third Republic (1871) was the leading spirit of the social revolution at Lyons and Marseilles. In 1871 he was for a short time at the head of the military operations of the Paris Commune, but narrowly escaped arrest by fleeing to London; in his absence he was condemned to death by the Third Council of War, 1872. In 1884 under an amnesty he returned to France, and in 1888 and 1889 was elected as deputy to the chamber by Toulon.

Clusia, an American genus of Guttiferæ, consists of climbing trees and shrubs, usually parasitical, which

yield a viscid resinous juice of a balsamic flavour; hence they are in England called balsam-trees. *C. alba* has a scarlet fruit with seeds embedded in scarlet pulp. The plant abounds in balsamic juice of a green colour, which becomes brown when exposed to the air; the seeds are a favourite food of birds, and are plucked from the fruit while hanging on the tree. *C. quapoya* is a climbing shrub with yellow flowers, and yields a white, transparent juice.

Clusium, see CHIUSI.

Clusone, a tn. and river of Italy. The river is a trib. of the Po, and has its source among the Alps about 12½ m. eastward of Mt. Genève. It flows in a south-easterly direction, passing the towns of Fenestrelle and Pinerolo. After a course of 50 m., it joins the R. Po, 18 m. from Turin. The town is in Lombardy, 16 m. N.E. of Bergamo. There are copper, iron, and vitriol works, and a trade in corn. Pop. 5940.

Cluster. In astronomy a C. is a group of stars which differs from other groups (i.e. constellations and asterisms) in that the members of the group would seem to have some physical connection. In other words, the stars in a C. are not a mere optical group which happen to lie nearly in the line of sight, but have certain attributes in common. Thus they may have similar spectra and the group of stars may be moving together. The sky contains many Cs., of which the Pleiades are the best known. Most people can see with the naked eye six stars in this group, though especially keen-sighted people may discern six or seven more, but with the aid of an opera glass or a small telescope a great many more are visible. The proper motion of the chief stars of the Pleiades and of some of the fainter ones has been shown to be the same, viz. 7" a century. The Pleiades belong to what are called irregular Cs.; the main part of the Cs. are globular in shape. Sir John Herschel's catalogue of nebulae (1864) contained a list of 110 globular Cs., and in the transactions published by the Lick Observatory there are many fine photographs of Cs. made by Messrs. Keeler and Perrins. Cs. were often in the early days taken for nebulae, until resolved into separate stars by instruments of higher power. The number of stars in a C. is often very great, and in the photograph of the well-known cluster round ω Centauri Professor Bailey has found more than 5000 stars in an area occupying about as much space as the moon appears, to the naked eye, to occupy. A remarkable fact about globular Cs. is

that they contain a large number of short-period variable stars, as many as 128 being found in the group mentioned immediately above. Most of the Cs. of both kinds are to be found in the neighbourhood of the Milky Way.

Clutha, or **Molyneux**, a river in the South Is. of New Zealand. It rises in Lake Wanaka, and traversing the prov. of Otago, falls into the sea at Molyneux.

Cluthalite, a mineral obtaining its name from the Clyde Valley, where it was found. It is a red, flesh-coloured variety of analcime. It occurs in vitreous crystals, and is a hydrous silicate of the zeolite section.

Cluver (or **Cluverius**), **Philip** (1580–1623), a Ger. geographer and historian, was a great traveller. He served as a soldier in Bohemia and Hungary, and was for a time in prison. After further tours in France and the British Isles, he returned to Leyden, where the Academy allowed him a regular pension. His chief works were *Germania Antiqua*, 1616; a treatise on anct. Sicily, Sardinia, and Corsica, 1619; and his *Introductio in Universam Geographiam*, published posthumously in 1629.

Clwyd, a river which rises in S. Denbighshire, Wales, and flows past St. Asaph and Rhuddlan to the Irish Sea at Rhyl. The Elwy is the chief tributary. Its valley is noted for its fine scenery.

Clyde (Welsh **Clwyd**, meaning strong), the chief river of Lanarkshire, Scotland, and one of the world's greatest commercial waterways. Its estuary forms the Firth of Clyde, the finest on the western coast. **Daer Water**, which rises in Gana Hill (2190 ft.), and **Potrail Water**, which unite near Elvanfoot, are the chief head-streams of the C. Its course is fairly devious till a point 4 m. above Lanark is reached, after which it is, broadly speaking, north-westerly as far as Dumbarton, where it discharges itself into the Firth. On the left bank the principal tributaries are the **Duncaton** (19 m. long), entering above **Roberton**; the **Douglas** (20 m.), above **Bonnington**; the **Avon** (28 m.), at **Hamilton**; and the **White Cart** (19 m.), below **Renfrew**; the affluents on the right are the **Medwin** (16 m.), joining the main stream near **Carnwath**; the **Mouse**, at **Lanark**; the **S. Calder** (16 m.), above **Bothwell**; the **N. Calder** (12 m.); and the **Kelvin** (21 m.), at **Glasgow**. Near **Lanark** the C. rapidly falls 230 ft. within 3½ m., forming the four famous Falls of C., namely, the **Bonnington Linn**, which is the most graceful; the **Corra Linn**, which in three leaps makes a magnificent cascade 84 ft. in height; and the **Dundaff** and the **Stonebyres**

Linns, the latter of which resembles the **Corra**. In flood-time both the **Corra** and the **Stonebyres Falls** make a single descent of 80 ft. or more. Stretching some 106 m. from its source in the **Daer** to **Dumbarton**, the C. is the third longest river in the country, the other two being the **Spey** and the **Tay**. Altogether it drains an area of 1481 sq. m. Above the falls it is a pure trout stream, watering pastoral uplands. Below it traverses a fertile valley, sometimes pent up between wooded slopes, sometimes broadening out into a plain. But long before the river reaches **Glasgow**, where the pollution is completed, it grows every mile more sluggish and begrimed as it receives the contamination of various trade effluents. Even in the eighteenth century the C. was fordable in the heart of **Glasgow**. But no effort nor money has been spared in deepening the channel, which is now 19 ft. at **Glasgow** even at low tide. Thus the docks at **Glasgow** can hold the largest vessels, and since **Henry Bell** launched the first steamer on the C. in 1812, the shipbuilding and shipping traffic has increased by leaps and bounds. The chief towns on its banks from **Elvanfoot** to **Glasgow** are **Crawford**, **Lamington**, **New Lanark**, **Lanark**, **Hamilton**, **Bothwell**, and **Blantyre**. The junction for the **Forth** and **C. Canal** is at **Bowling**. The head ports are **Glasgow**, **Port Glasgow**, **Greenock**, **Ardrossan**, **Troon**, **Ayr**, and **Campbeltown**. The fairway of the Firth, which reaches from **Dumbarton** to **Ailsa Craig**, measures over 60 m., and from the **Mull of Kintyre** to **Girvan** is nearly 40 m. across. The chief islands in the Firth are **Bute**, **Arran**, and the **Cumbraces**, and among the sea lochs, many of which are popular holiday and health resorts, are **Gare Loch**, **Loch Long**, **Holy Loch**, and **Loch Fyne**. These are all on the **Highland coast**. A weir prevents the further ascent of the tide above **Glasgow**.

'Clyde' **The**. The name of a transport which landed British troops on the **Gallipoli Peninsula** in the **Great War** in 1915. (See **GALLIOLI CAMPAIGN**.)

Clyde, Lord, see **CAMPBELL, SIR COLIN**.

Clydebank, a burgh of **Dumbartonshire**, Scotland, on the r. b. of the Clyde, 6 m. N.W. of **Glasgow**. Since 1886, **Yoker**, **Kilbowie**, and **Dalmuir** have been included in the burgh. At C. there are a shipbuilding yard and engineering works, at **Kilbowie** the factories of the **Singer Manufacturing Co.**, and at **Dalmuir**, a shipbuilding yard, a new town hall and public library. Pop. 46,506.

Clydesdale Terrier, or **Paisley Terrier**, resembles the prick-eared variety of Skye terrier. It was only introduced about fifty years ago, and is kept entirely as a house-dog. It has a long, silky coat, and is light-coloured with tan legs. Weight 15 to 20 lbs.

Clynes, Rt. Hon. John Robert, British statesman, was b. at Oldham, March 27, 1869; son of Patrick Clynes, who had been evicted from his holding in Ireland in 1851, and had become a labourer in the employ of Oldham Corporation. J. R. C. attended St. Anne's Elementary School when a half-timer in a cotton-mill;



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but he began self-education as a piecer aged seventeen. He was small and weak for his age. Under the name of 'Piecer' he contributed to the correspondence columns of Oldham papers. He took part in the establishment of a (short-lived) Piecers' Union, which helped to make a speaker of him. He was enlisted by Will Thorne, M.P., as an unpaid speaker at his organising meetings of the Gas and General Workers throughout Lancashire. At 22 he was appointed organiser at 30s. a week: he held the post for six years, and then became secretary of the Lancashire dist. of the Union.

He tried repeatedly but unsuccessfully to enter Oldham Town Council. He held the secretaryship of Oldham Trades and Labour Council for twenty-one years. In 1906, he won, at first attempt, a parliamentary seat, becoming Labour member for N.E. Manchester—a constituency he represented till its disappearance in 1918; since when he has sat for the Platting div. He was Parliamentary Sec. to the Ministry of Food, 1917-18; became Food Controller (and P.C.) in the latter year, but resigned at the call of party. Vice-Chairman of Labour Party, 1919; Chairman, 1921—but in 1922 was relegated to deputy-chairmanship. In Labour Gov. of 1924 was Lord Privy Seal and deputy-leader of Commons. When the party took office again in 1929, he became Home Secretary. He is president of the National Union of Municipal Workers.

Clypeus Sobieski (Lat. *clypeus*, a shield), a constellation formed by Hevelius (1611-87) out of some small stars below Aquila. It was named in honour of John Sobieski III., King of Poland (1674-96).

Clysters, or **Enemas**, are liquid medicines which are introduced by means of an enema syringe into the lower end of the intestines or the rectum. The injection may be made for various purposes, and is generally made when the ordinary method of taking is impossible owing to the condition of the patient: thus, for the purpose of evacuating the bowels in cases of constipation, or for conveying stimulants into the system, and in cases of diarrhoea. Warm water is the common form of C. for evacuation, and beef-tea for strengthening. The use of C. is much more common in France, where they are termed *lavements*.

Clytemnestra, the daughter of Leda, wife of Tyndareus, King of Sparta, by Jupiter, and the sister of Castor. C. married Agamemnon, King of Argos. During the absence of Agamemnon at Troy, C. formed a guilty connection with his cousin, Ægisthus, and to save herself, on his return murdered him in his bath (according to some accounts the murder was committed in revenge for the supposed sacrifice of her beloved daughter, Iphigenia). C. then married Ægisthus, who usurped the throne of Argos. Orestes, her son, concealed himself in the house of his sister Elektra, and killed the guilty pair on their way from the temple of Apollo. See AGAMEMNON, ÆGISTHUS, ELEKTRA, IPHIGENIA, ORESTES.

Cnidus (Κνίδος), an anct. Gk. city on the coast of Caria, Asia Minor,

at the end of the peninsula of Triopium (Cape Krio); colonised from the Peloponnesus, said to be both Laconian and Argolic. One of the six cities of the Dorian League. Originally on an is., the settlement spread to the mainland. The city was famed for its worship of Aphrodite, her celebrated statue (by Praxiteles) being in one of its temples. In 394 B.C. the Athenian admiral Conon, commanding a Persian fleet, defeated the Spartan fleet under Pisander near C. The fine seated statue of Demeter (British Museum) was excavated from the ruins of C. See Newton, *Discoveries at Halicarnassus, Cnidus, and Branchidae*, 1862-3; and *Travels and Discoveries in the Levant*, 1865.

Cnossus, an anct. tn. of Crete, sometimes called Cératus, from the small river which flowed beneath its walls. Its foundation is attributed to Minos, King of Crete. The locality was the scene of the birth of Jupiter and of his marriage with Hera, and was also his burial place. The Cretan labyrinth, built by Dædalus, and the abode of the Minotaur, was also attributed to C. The explanation of the origin of this legend is given by Dr. Evans (*Times*, Oct. 31, 1905 and following in 1907, 1908, 1909) in his account of the excavations. It was peopled by the Dorians, was prominent in the civil wars of Crete, and finally became a Rom. colony. See CRETE.

Coach and Coaching (Magyar *kocsi*, the kind of vehicle used at Kocs, W. Hungary, fifteenth century). A coach is a large, enclosed four-wheeled carriage for passengers. As a general term it may be used for all carriages (e.g. in 'C.-building'), or combined with other words for special forms (e.g. stage-C., mail-C., hackney-C., mourning-C.). The typical C., however, has as special characteristics four wheels, springs, a roof forming part of the framing of the body, and more than one seat for passengers. It was perhaps a later development of the huge agricultural waggons in use on the Continent in the twelfth and thirteenth centuries. In the Middle Ages very elaborate Cs. were used by royalty and nobility and for State purposes. The first C. in England was made by Walter Rippon (1555) for the Earl of Rutland; in 1564 he also made one for Elizabeth. The stage-C. had seats outside and in, and was much used in England as a public conveyance from the sixteenth century. At least six existed in 1675, but they did not enter very largely into English life till the eighteenth century. In earlier times broad-wheeled vans or waggons were used to convey pas-

sengers who could not afford to travel on horseback. Fares were naturally very high, as the pace was slow and six or eight horses were needed. At first there were no actual seats outside, but 'outsides' were taken at a reduced rate (about half-price), and had to cling on by the luggage as best they could. In 1767 a basket, called the 'convenience,' was attached to the back of the C. for half-price passengers. In 1659 the first stage-C. ran between London and Coventry. In 1784 the mail-C. system was introduced by John Palmer, M.P. for Bath, to replace the post-boys who were employed up to that time. The post office vehemently opposed his suggestion, but it was carried out, the first mail-C. running between London and Bristol in 1784. In 1789 springs were introduced by John Warde, the 'father of fox-hunting.' Tubbs and Davis's 'machine' was one of the first fast Cs. that ran between London and Brighton. In 1791 lighter vehicles were introduced. Some Cs. only took eleven hours to Brighton from London, 'flying' Cs. could even do it in eight. The fare for a single journey was 14s. or 16s. Before railways came into use (c. 1840) Cs. had regular routes all over the country; similar ones were used in America and on the Continent, where alternative names, such as 'diligence,' 'Stellwagen,' and 'Eilwagen,' were used for vehicles of the kind. The earliest railway vehicles were merely road Cs. adapted to run on rails. The expression 'coaching-traffic' means traffic carried in passenger trains. In the United Kingdom the two best-known Cs. of historical interest are the King's state C., and the Lord Mayor's (which figures yearly in the procession of the Lord Mayor of London, Nov. 9). This is the oldest, first used for the procession of Sir Charles Asgill, Lord Mayor elect, 1757. The body is hung on leather straps, and has much ornamental carving, gilding, and paint-work. The panels and doors are covered with various allegorical groups of figures, representing suitable subjects, and with heraldic devices. The King's C. was designed by Sir William Chambers and described as 'the most superb carriage ever built.' The paintings were done by Cipriani, the whole being completed in 1761. In the later years of Victoria's reign it was rarely seen, but on the accession of Edward VII. it was again made fit for use on State occasions. In 1824 the art of coaching had been perfected; it was often a form of sport, and the custom of driving for high wagers was very popular. When steam conveyances

had ousted mail-Cs. as a necessity, coaching still continued to a certain extent as an amusement for the richer classes. In the early nineteenth century Macadam and Telford improved road-making to such an extent that the conditions for driving were much pleasanter. Considering the unprotected state of the roads, highway robberies were not as frequent as might be expected, though, of course, many tales of them survive (Dick Turpin). Much skill was needed to drive four horses, and the difficulties and humours of 'the road' are very often referred to in Eng. literature. From the sense of driving, the word 'C.' came to be applied to a tutor for examinations or for athletic contests, especially rowing (army C., 'Varsity boat-race C.). By 1824 over 300 Cs. used to pass Hyde Park daily. The most famous coaching-clubs of England have been the old Bensington Driving Club, 1807-52, and the Four Horse Club, 1808-29. These drove a kind of landau. The Richmond Driving Club (promoted by Lord Chesterfield) was instituted in 1838. The Four-in-Hand Club was started in 1856, with the Duke of Beaufort as president, and the Coaching Club in 1870. In America the New York Coaching Club was formed in 1875. Coaching was chiefly the sport of the richer classes, but has been almost completely ousted by motoring. From 1896 coaching became a favourite pastime of American millionaires, but its true home was in England. Professional drivers of the 'Brighton Age' were Charles Jones, Sir Saint Vincent Cotton, Dick Brackenbury, and others. Robert Parks for eighteen seasons in succession drove the C. from Keswick Hotel to Windermere and back (42½ m.) every week-day. The last sensational driving-match was in July 1888, when James Selby drove the 'Old Times' from London to Brighton in 3 hrs. 56 min., and back in 3 hrs. 54 min. The average speed is 10 to 11 m. an hour. In some parts of England (London to Brighton, Lake District), in America and Europe, public Cs. ran until quite recent years at regular times along certain routes. A modern C. has two parts, the 'carriage' and the 'body.' The latter usually measures 4 ft. 10 in. long, 4 ft. wide, 4 ft. 2 in. high. They have brakes, but good drivers only need them in emergencies. The American 'Concord C.' has no springs, but leather straps. See *New Remarks on London*, by the Company of Parish Clerks, issued 1732; Tristram, *Coaching Days, and Coaching Ways*, 1891; *Essays on the Road*, by 'Nimrod' (Apperley),

1876; Thrupp, *History of Coach-building*, 1877; Cross, *Autobiography of a Stage-coachman*, 1861; Bishop, *A Peep into the Past: Brighton in the Olden Time*, 1895; the *Badminton Driving*, by Duke of Beaufort, 1888; Rogers, *Manual of Driving*, 1900; Adams, *English Pleasure Carriages*, 1837; Chamberlayne's *Magna Britannia Notitia*, 1708; Blew, *Brighton and its Coaches*, 1894; Malet's *Annals of the Road*, 1876; Collier's *Riding and Driving*, 1905.

Coach-building, or Coach-making, the name given to the carriage-manufacturing industry. As a matter of fact, C. calls for the services of craftsmen in many different trades. The variety of materials used in the manufacture of a first-class carriage is so great—iron, steel, silk, leather, glass, etc., being utilised—that many classes of highly skilled labour are employed. 'Body-makers' manufacture the part where the persons are seated, 'carriage-makers' the parts on which the body rests, and wheelwrights, joiners, and fitters, several classes of smiths, painters, and trimmers, all are needed. Various thicknesses of planks are used, and for every inch of thickness a year is required to season the wood effectively. Ash is the best wood; for the body a full-grown variety of a mild nature is used, for the carriage a stronger variety, and for the carriage poles younger, straight, and tougher pieces. The framework of the body is panelled with quarter-inch planks of Honduras mahogany with no grain; this is then coated with ground white lead until it is completely weather-proof. The roof is covered with wide pine boards, a quarter of an inch thick, and three thicknesses of wood, exceedingly thin, are then glued together under pressure, so that the grain of the centre piece runs across that of the outer pieces. Thus a good solid covering without joints is obtained. Birch and elm are also used, and pine for the flooring-boards. It is perhaps in the wheel-making department that most improvements can be traced in carriage-making. For the nave of a wheel, wych elm is the best wood; heart of oak is used for the spokes, and ash for the felloes. For light wheels American hickory has been much used of late years, and the American method of making the wheel in two sections is also an improvement for this class. The Warner nave is a solid iron casting, with mortices for the spokes; this also is more used on light carriages. When indiarubber tyres are used, the felloes need not be so deep as in the case of metal. The best springs are made of Swedish ore,

though Eng. spring steel is very good. Axle-trees are of two kinds, 'mail' and 'collinge'; the former are secured to the wheel by three bolts through the nave, the latter by a gunmetal cone secured by collets and nuts. Cast, chilled, or wrought iron is the material used for axle-boxes, the first being the cheapest. The painting of a carriage is most delicate work, and a special class of painters is employed to paint the coats-of-arms when required; these are known as 'heraldry' painters. The woodwork is first treated with copal varnishes, and then with successive coats of paint; in first-class work as many as twenty coats are applied. After a year's wear, the 'gloss' of the work may be revived by rubbing with oil and rotten stone; this is a delicate process, requiring highly skilled labour. The interior of a carriage is now more luxurious than formerly; satin and tabaret were largely used in the nineteenth century, but now morocco has superseded them as seat material; silk curtains, carpet, electric light, flower-vases, etc., complete the furnishings.

Coadjutor, the assistant of a bishop who is unable to perform his work owing to either ill-health or old age. He often succeeds to the bishop's see when that dignitary dies.

Coagulation, a change which occurs in the physical properties of certain proteins when heated or subjected to various chemical actions. The typical examples are *egg-albumin*, or white of egg, which is a colourless, sticky fluid, miscible in water at ordinary temperatures, but solidifies into an opaque white mass when placed in boiling water; and *blood-albumin*, which clots on exposure to the air, thus serving a useful purpose in preventing escape of blood from small wounds.

Coahuila, one of the twenty-seven states of Mexico in N. America. It lies inland, and is bounded on the N. by the U.S.A., and has an area of 62,376 sq. m. The climate is salubrious, although there are somewhat rapid changes in the thermometer. Agriculture and cattle-farming form the chief occupations. This state is rising in importance

owing to the extensive railway development; it possesses five districts, and the chief products are cotton, wheat, maize, sugar, and linseed. Pop. (1900) 296,938. Its capital is Saltillo.

Coal, meaning, in its broad sense, any fuel, is used in England to signify that form of fuel which is obtained as a mineral from pits. This form of fuel is one of the organically formed rocks, and occurs chiefly in the Carboniferous system, or rather in the C. Measures. As can be inferred from this, it chiefly consists of carbon, and is regarded as being derived from plant remains. It is a black or blackish-brown rock, with a low specific gravity, and having hydrogen and oxygen as its chief constituents other than carbon, and it is now the principal domestic and commercial fuel. C. may be divided into two classes: (1) *Bituminous*, (2) *Anthracite*; while *lignite*, or brown C., may be taken as a stage in the process of the conversion of vegetable matter into bituminous C. Graphite would further be added by some authorities as the final stage in the transition. The most general theory of the formation of C. is that which considers that in the Carboniferous age great masses of luxurious vegetation grew near sea-levels. In the process of time the land covered with this vegetation became submerged, and sediments of mud and sand, etc., formed over it. By processes, again well known to geologists, this land became raised again above sea-level, and new vegetation grew, which, in its turn, would undergo a similar treatment to the other. These processes would at length produce stratified measures, which, under the ensuing great pressure and certain chemical changes which would inevitably be caused, would result in the formation of seams of C. From microscopical examinations it may be inferred that a large number of the C. seams were formed from great jungles and swamps. Now, if wood, peat, lignite, bituminous and anthracite Cs., and graphite be analysed, a table similar to the following (compiled by Prof. J. W. Gregory) may be obtained if the small amounts of nitrogen and sulphur be neglected:—

	Carbon per cent.	Hydrogen per cent.	Oxygen per cent.	Ash per cent.	Moisture per cent.
Air-dried Wood. . .	39	4.5	35.5	1	20
Air-dried Peat . .	44.5	4.5	26.5	8.5	16
Air-dried Lignite . .	45	3.75	26.25	10*	15
Bituminous Coal . .	72	4.0	11.0	10*	3
Anthracite . . .	91.5	2.5	1.0	3	2
Graphite . . .	95	—	—	5	—

* Very variable.

It may be stated as a general truth that anthracite is always found deeper in the earth than bituminous, bituminous than lignite, and that peat is found on the surface. Of course this generality is not always borne out, but this fact and the above table uphold the generally accepted theory that hydrogen and oxygen are, by heat and pressure, caused to separate from the vegetable matter as marsh gas and carbon dioxide. The deeper the layer the greater the heat and the pressure, and as a result the greater is the evolution of the separating gases. As this process proceeds it is evident that an increasing percentage of the C. will be carbon, the specific gravity will rise, the colour darken, and we will arrive at a rock formation. If the leaves and branches of trees accumulate, a mould will be formed which will be rich in carbon, while mosses growing in swamps will form peat. If either or both be buried, the carbonaceous layer will be preserved. As stated above, heat and pressure will cause some of the volatile elements (oxygen and hydrogen) to pass off, leaving lignite. Greater pressure will resolve this into bituminous C., while the same process intensified will produce the hard lustrous form of C. known as anthracite, which is free of dust and will burn without smoke or flame. It might also be formed by the intrusion of igneous rock. Igneous rock, having intense heat, flowing into dykes in this anthracite would convert into graphite, which is practically pure carbon. This theory is partly illustrated in the South Wales coal-field. If we pass from the S.E. to the N.W. of the field, we pass from bituminous C. seams through steam C. to the anthracite, steam C. being intermediate in composition and properties between the bituminous and anthracite. It may be pointed out here, though, that not all graphite formations can be at all ascribed to this process of formation; and in some cases it may be noticed that anthracite and bituminous C. occur together, and seem to have been formed under the same conditions. Greater heat and pressure not accounting for these cases, it has been thought that in these cases, and perhaps in all, anthracite C. is formed from a different kind of vegetation from that which gives bituminous C., although this has not yet been thoroughly proved. Microscopic examination shows that C. consists of four main constituents, called *durain*, *clarain*, *fusain*, and *vitrain*. As a whole, C. appears to be a colloidal substance (see COLLOIDS), but the

general structure is so complicated and so variable that the problem of its constitution can hardly yet be said to have advanced beyond the fringe of a solution.

All C. as would be expected from its vegetable origin, contains a proportion of nitrogen, and is important as the source of the ammonia obtained as a by-product in the manufacture of coal gas.

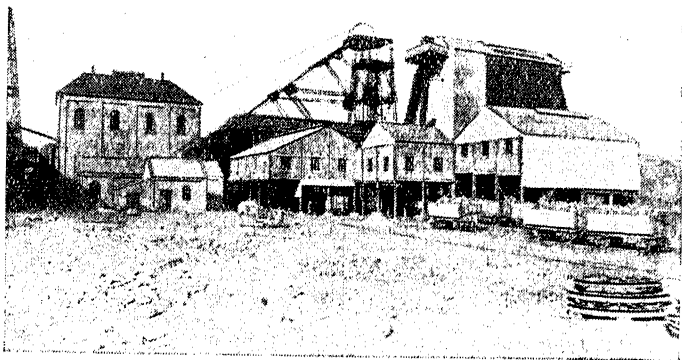
The effect of heat on C. in the absence of air varies according to the conditions, especially the temperature (see LOW TEMPERATURE CARBONISATION). Gaseous and liquid products are always found, however (see COAL-GAS and COAL-TAR), while a residue of Coke is left in the retorts.

Lignites (q.v.).—Taking our division of the kinds of C., lignite would first demand attention. It is sometimes termed brown C., although it is inferior altogether to true C. It is, however, used a good deal in N. America, where a variety is found which cokes well and is a good substitute for C.

Bituminous coals form the greater part of the C. Measures, and are the forms in general use for domestic and commercial purposes. They are black, brittle, and opaque, and have a cross-jointed structure, often breaking into rhomboidal or cubical fragments. They have a low specific gravity of about 1.3, and, if they are good varieties, will give a percentage of ash of ten or under. This ash, or incombustible inorganic matter, occurs in all Cs., and consists of sand and mud which has mixed with the layer of C. at the time of its formation. In some Cs. (mainly continental) the percentage of ash may rise to over thirty. When a large amount of these impurities enter, causing a great lowering of the value of the seam as fuel, it is called bituminous shale or sandstone, not C. From some of these shales and cannel C., oil is obtained by processes of distillation. Bituminous Cs. are also used for obtaining gas. They are heated in closed ovens, and the coal-gas, together with coal-tar and ammonia, is formed, leaving coke as a residue. This coke is practically carbon, and is used in smelting. There are many different varieties of bituminous C. and several ways of classifying them are adopted. In S. Wales the general classification would be into *house C.* and *steam C.* Under the first heading would be placed all those Cs. with a fairly low percentage of carbon which, possessing comparatively large amounts of gas occluded in them, will burn with a large amount of flame. These seams are found all over the coal-field, and are those nearest the surface, in some

places outcropping from the mountain side. The steam C., on the other hand, is always derived from pits of a fair depth. It has a higher percentage of carbon, is harder, and has a greater lustre; and as a consequence of its comparatively small amount of composing gases, it burns without a great deal of flame or smoke, and has a greater amount of available heat. Local names are given to those seams which are first worked near them, and these names remain with the seams wherever they may be worked. This holds good everywhere, as will be seen from the names Wallsend, Derby Brights, Mynyddyslwyn, etc. To take an example, the Mynyddy-

coal-field contains vast supplies of steam C. which are not inferior to those of Glamorgan, and they are at present being developed. Another mode of distinguishing varieties of bituminous C. is that of dividing them into *caking* and *non-caking Cs.* This has an economic value. *Caking Cs.* require a great deal of work in stoking, since while they will burn freely, with great flame and smoke, at the same time they will cake up together into 'clinkers.' These prevent perfect combustion, and, further, require a deal of effort to free them in some cases from the fire-bars. *Non-caking Cs.* burn 'free,' and since the ash remains separate, are easy to



[Courtesy of Dorman, Long & Co.]

THE PIT-HEAD OF A BRITISH COAL MINE

slwyn is regarded as being perhaps the finest house C. found in Wales, but it is not worked near the place of that name now. It was at first, and the name has remained. As has been stated before, steam C. is intermediate between bituminous and anthracite C., and the finest steam C. in the world is that found in S. Wales and Monmouthshire. While it is true to say that progressing from the S.E. to the N.W. in this field results in passing from bituminous to anthracite C., it would probably be truer to say that while only anthracite is found in the W., bituminous and steam C. (if steam C. be considered as distinct from bituminous), or house and steam C. (if the distinction be not recognised) can be found right to the E. of the field. The Monmouthshire

stoke. To obtain the good qualities of the caking and the non-caking Cs. mixtures are made of different varieties. Newcastle C. is among the caking varieties. Among other well-known forms of bituminous C. may be mentioned *spint C.* This is a hard C., found in Scotland, which is used in smelting as the cokes of other Cs. would be. Then there is that known as *cannel C.*, which may have obtained its name from the tradition that, since it burns with a bright flame like a candle, torches used to be made of it. It also burns with a crackling noise, and is therefore sometimes known as *parrot C.* It is hard, and does not soil the fingers, and some forms of it can be polished and made into nkstands, etc. Some forms of American C. are capable

of this also. It is much used as a gas-producing C., and also in some districts for burning in open grates.

Anthracite is a hard, rocky form of C. with an almost metallic lustre. It is difficult to kindle, but when burning it gives out great heat. It is found in the W. of the S. Wales coal-field and also in America. It burns practically without smoke and flame, and has a greater heating power than any other form of C.

Heating Power of Coal.—C. is judged by the number of pounds of water which will be raised 1° F. by the burning of 1 lb. of the fuel, by the amount of water evaporated at 212° F. by 1 lb. of it, and these tests are always carried out on boilers of the type in which it is to be used, for it is found that the heating power of any variety of C. varies considerably, according to the conditions under which it is to be burnt.

Bibliography.—Green and Miall, *Coal: History and Uses*, 1878; Galloway, *History of Coal-mining in Great Britain*, 1882; Nicolls, *Story of American Coals*, 1897; Walcott Gibson, *Geology of Coal and Coal-mining*, 1908; Moore, *Coal, its Properties, Analyses, etc.*, 1922; Bone, *The Constitution of Coal*, *Journ. Soc. Chem. Ind.*, 1925.

Coalbrookdale, a dist. in Shropshire owning an iron industry, situated on the banks of the Severn for a distance of 8 m. along its course. The village of that name is 11 m. from Shrewsbury. Pop. 1388.

Coal-fields are constituted of those areas where the coal-bearing strata appear at the surface, or where their coal and ironstones can be worked at a profit. In England very few workable seams are found lower than the Coal Measures or the Upper Carboniferous division of the Carboniferous system. The two other divisions are the Millstone Grit and the Carboniferous Limestone. In Scotland, however, valuable seams are found lower than the Millstone Grit, while oil shale is obtained even below the Carboniferous Limestone. Coal is, however, worked from other strata both older and younger than the Carboniferous, being worked from the Devonian, Miocene, Pliocene, Oolitic, and other formations, although coal obtained from these seams is of relatively small commercial value as compared with that obtained from the Coal Measures. It may here be noticed that C.-F. are usually found in the form of a syncline or basin, dipping inwards at the edges and lying more or less level at the centre, thus causing the seams to crop out very frequently at the sur-

face. This gives rise to two important factors: (1) it allows the coal to be easily reached and worked, because but for this fact a large amount of it would be too deep in the earth to be reached; and (2) it has saved the C.-F. from the destroying effects of denudation, to which they would have been very susceptible owing to the comparative softness of the coal-bearing strata. Coal is, of course, the chief mineral wealth of the British Isles, and is the source of its commercial prosperity. Among the many C.-F. in the British Isles are the following: in the neighbourhood of the Bristol Channel, the S. Wales C.-F. and that of the Forest of Dean, with a small one at Bristol; in the Midlands occur the C.-F. of Leicestershire, E. Warwickshire, S. Staffordshire, Coalbrookdale, Shrewsbury, and Flint; around the Pennine Chain occur those of N. Staffordshire, Yorkshire, Lancashire, Durham, Northumberland, and Cumberland; in Scotland occur the Lanarkshire, Ayrshire, and Fifeshire, and in Ireland the Tyrone, Kilkenny, and Clare C.-F. The S. Wales C.-F. is famous all over the world as providing the greater proportion of the steam and anthracite coals used in the various mercantile marines and navies, while at the same time it provides coals of the kinds suited for smelting, manufacturing, and house coals, together with those varieties used in the production of gas. The coal from the Midlands and the N. is generally used in all these branches, except that it is not of such great value for shipping purposes, and that it is chiefly used in the great manufacturing and engineering centres of the N. Large quantities are exported from S. Wales all over the world, and from the fields of Fifeshire and the N.E. of England thousands of tons are exported to the Continent. The largest C.-F. are probably those of America, which are over eighty times as large as the whole of those of Great Britain, covering as they do nearly 200,000 sq. m. The term coal is used in the U.S.A. with no such narrow restriction as in England to varieties occurring in the older Carboniferous formations; but, as on the continent of Europe, includes anthracite and bituminous coals, lignitic coal, cannel coal and ordinary lignite, or, in other words, embraces both the *black* or *stone coal* of Great Britain and the so-called *brown coal* of the Continent. The coal output of the U.S.A., no less than the splendid quality of the numerous varieties, surpasses those of any other country. The coal-bearing areas are to be found scattered over more than thirty of the states, and

indeed it is only in some of the New England states that no coal occurs. The Appalachian mountain system, extending from E. Pennsylvania to the S., indicates the line of the principal coal-bearing country, and it is here that the most valuable deposits of hard anthracite are to be found. The group of fields of next importance is the 'Eastern Interior' group in Illinois, Kentucky, Indiana, Ohio, where are to be found the best qualities of bituminous and cannel coal. In the 'Western Interior' group of Missouri, Iowa, Kansas, the output of the same varieties is no less important. Next in importance come the large lignitic and bituminous C.-F. of Arkansas, Texas, Oklahoma, Colorado, and New Mexico, which last-mentioned fields continue along the line of the Rockies northward into Canada. Anthracite also occurs in Massachusetts, Arkansas, and Virginia; bituminous coal in Nebraska, Michigan, and Alabama; and lignitic coal in nearly all the states W. of 105° W. long., especially New Mexico, Colorado, California, and Utah. Lignite is found mainly in the western states. Speaking geologically, the better qualities of both the anthracite and bituminous coals belong to the Carboniferous formations, but the quality varies only to a very uncertain degree with the geologic age, and it is curious that whereas up to about 1870 more anthracite was mined in Pennsylvania than bituminous coal throughout the country, since that year the production of bituminous coal has far exceeded the former. According to the U.S. Geological Survey, the geologic age of the coal-beds ranges from Carboniferous in the Appalachian and Mississippi valley provinces to Miocene on the Atlantic coast provinces. After Great Britain and the U.S.A. Germany is the principal exporting country, and remains so, after having lost, as a result of the War, the Alsace-Lorraine C.-F., the Saar district, and almost the whole of the C.-F. of Upper Silesia. The partition of Silesia, with its rich C.-F., was hotly contested after the Great War, and settlement was attempted by plebiscite in 1920. Eventually the mining area of Teschen, Lower Silesia, formerly Austrian, was allotted to Czecho-Slovakia, already rich in minerals, while Upper Silesia, formerly German, was given to Poland. Other productive European fields are located in Belgium (Charleroi, Mons, and Liège), France (St. Etienne), Germany (Westphalia and Silesia), Spain (Asturias), and Russia (Donetz), while coal is also found in the Alps,

the Urals, and even at Spitzbergen. Other C.-F. are those in China, India, Japan, the Malay Archipelago, Australia, New Zealand, Africa, and Canada; while in Europe productive fields occur. Coal is not the only commercial product obtained in the C.-F., for included in the same strata are ironstone, oil shale, fire-clay, sandstone, and igneous rocks which supply a good paving and building stone, in fact the oil shales and sandstones usually make up by far the greatest proportion of the thickness of the coal-bearing strata. See GEOLOGY, CARBONIFEROUS SYSTEM, and read Sir A. G. Ramsay's *Physical Geography and Geology of Great Britain*, James Park's *Mining Geology*, and R. Etheridge's *Stratigraphical Geology and Palaeontology* (on the basis of Phillips).

Coal-fish, Greencod, Saithe, or *Gadus virens*, is a member of the cod-fish family. It is carnivorous and is itself eaten by man, and on the W. coast of Scotland is often caught in great abundance as it preys on herring. The fish inhabits the seas between the Arctic and the Mediterranean, and has obtained the name of C. from the dark colour of its back.

Coal Gas. If coal be distilled, volatile products are evolved and coke is left. The volatile products are coal-tar, ammoniacal liquor, and C. G. If these volatile products be cooled, then C. G. is left. After ordinary purifying processes have been adopted this gas consists of a mixture of gases which can be divided into three classes as follow: *Illuminants*—ethylene, propylene, butylene, acetylene, allylene, and benzene; *Diluents*—hydrogen, marsh gas, and carbon monoxide; *Impurities*—nitrogen, carbon dioxide, and sulphuretted hydrogen. The last class acts against the purposes for which C. G. is used, and therefore should be removed. C. G. is made from any bituminous coal, although cannel coal gives the highest percentage of illuminants, and will consequently give the gas with the highest candle power. As C. G. is to-day largely in use for driving gas-engines, and since the flat-burner system has largely been superseded by incandescent lighting, it is not so essential to have a gas of high illuminating power; in fact the expense incurred in obtaining a gas of this type is too great for the light obtained. The modern tendency in gas production is to carry out the distillation at a high temperature. As a result, there is a smaller yield of liquid products with a higher yield of gas of lower illuminating power. C. G. is frequently mixed with *water-gas*, a mixture of

carbon monoxide and hydrogen made by passing steam over strongly heated coke. $C + H_2O = CO + H_2$. Carburetted *water-gas* is made by spraying an oil into part of the water-gas plant, when the high temperature converts the oil into hydrocarbon that remains gaseous and causes the W. G. to yield a luminous flame when burnt. *Producer-gas* is obtained by the partial combustion of coke in a current of air, the coke being oxidised to the stage of carbon monoxide, CO. P. G. consequently consists of carbon monoxide and the residual nitrogen from the air used, the percentage of volume of the latter being about 65. C. G., water-gas and producer-gas are all widely employed for industrial purposes, since they form clean, reliable and easily manipulated fuels. By the Gas Regulation Act of 1920, C. G. is now sold not by the cubic foot as previously but by heating power measured in *therms*. See also *BELBY*. One therm is equal to 100,000 British Thermal Units, i.e. it is the amount of heat required to raise the temperature of 100,000 lb. of water one Fahrenheit degree.

Coaling Stations. Since Great Britain has world-wide commercial interests, it is a necessity that ports should be specially fitted out for supplying steamships with coal. At the same time these stations are an essential to the Royal Navy, and as a consequence have to be in some measure fortified. In 1878 a royal commission began to inquire into this subject, and in 1881 its final report was issued. At this time the route to the East was by way of the Cape, and certain harbours on this route were selected. Since the opening of the Suez Canal, stations had to be provided along that route. The armament of these stations is in the main light, although a great amount of money has necessarily been spent on them. Some defence, however, is necessary against attack from the air. The majority of the C. S. of the world are now oil-fuelling stations as well, but oil supplies are more vulnerable than coal, especially from the air. Among the principal stations may be named Aden, Bombay, Brisbane, Calcutta, Cape Town, Christchurch (New Zealand), Colombo, Durban, Falkland Islands, Fiji Islands, Gibraltar, Halifax, Hong-Kong, Jamaica, Kurrachee, Labuan, Malta, Mauritius, Rangoon, Sierra Leone, Singapore, Sydney, and Zanzibar. In addition to these it might be pointed out that the great coal-shipping firms of Great Britain have depôts for the storing and supply of coal all over the world,

e.g. Rio de Janeiro and Buenos Aires.

Coalition, a combination of states or political parties having different or opposed interests, effected for the purpose of attaining a specific end or carrying out or resisting a particular policy. Some international Cs. were: The first C. against France in 1793, formed by England, Spain, Holland, Austria, and Prussia; the second C. against France in 1798 after the Battle of the Nile; and the third C., of which the chief members were England, Austria, and Russia, formed in 1805, largely through the exertions of Pitt. Perhaps the most celebrated C. of political parties in past English history was the 'C. ministry' of 1783, with the Duke of Portland as nominal Prime Minister, the two antagonists Fox and North being the Secretaries of State, following on the C. of Fox and Burke in 1782 to turn Shelburne out of office, both Cs. arising out of the bitterness and personal recriminations engendered by the loss of the American colonies. In 1804 Pitt, Fox, and Grenville united to oppose the Addington ministry, but on Pitt becoming Prime Minister the C. broke up because the king refused to receive Fox. The object of this last C., which sank the differences of its members over the question of Catholic emancipation, was to secure a stronger ministry in view of the general menace to Europe from France under Bonaparte. Most Cs. between parties either break up at once or become permanent through the absorption of one party by the other. The latter happened in the case of the Liberal and Conservative C. against Gladstone's Home Rule Bill of 1893. Where a particular reform or projected measure is, or is thought to be, of very far-reaching importance, it may often happen that what were previously matters of controversy sink into insignificance in one all-absorbing fear or dislike of the one great change. Perhaps in England a more significant C. was never experienced before the Great War than that of the Liberal, Nationalist, and Labour parties after the general election of 1910, the dominant motive of which was the determination to give Home Rule to Ireland. The necessity, on the outbreak of the Great War, of sinking Party politics in the larger issues led in Great Britain to the formation of a Coalition Government, representative of all shades of political opinion. The War Cabinet (see also *CABINET*; *CABINET*, *IMPERIAL WAR*), which was formed soon afterwards, at once exercised a greater and more arbi-

trary authority than had long been customary under the British Constitution. Under the Defence of the Realm Act (*q.v.*) powers, almost connoting a dictatorship, were vested in the Prime Minister and the chief officials of state. In order to produce harmonious relations essentially Liberal projects were dropped, and even Bills which had become Acts of Parliament under the Liberal Gov. were postponed as to their date of operation. The C. subsisted throughout the war, and once again assumed office after the general election of 1918, but finally yielded to the party system in 1922, the immediate cause of the downfall being the Gov.'s policy on the Chanak affair. (See under GRAECO-TURKISH WAR (1921-22); HARINGTON, SIR CHARLES; TURKEY.) Many provisions of the Defence of the Realm Act remained a long time in operation after the war and some of them, though no longer operative under that title, have passed into the law in other forms.

Coal Measures, *see* COAL-FIELDS, CARBONIFEROUS SYSTEM, PALEONTOLOGY, PETROLOGY, GEOLOGY.

Coal-mining. *Exploration or prospecting* is carried out by applying geological knowledge. When coal is found to exist, or likely to exist, in a district, search is made by means of a 'day' mine, a trial pit, or more frequently by boring. If an outcrop is found, a drift is dug into the seam to prove its value, while if from any cause it is difficult to work the outcrop, then a small trial pit is sunk, a little distance from the outcrop, to the seam, and levels are driven into the seam from this. If, however, the seam lies deep in the ground, boring is performed. From this trial boring it is possible to tell what strata are passed through, the depth of the seams from the surface, their thickness and quality, the nature of their floors and roofs, the inclination of the strata, and the number of faults in the field; and by the aid of this knowledge it is possible to estimate the expense of sinking the shafts and the relation between the cost of working and the output of the mine. Two methods are used principally in boring, *percussive* and *rotary* boring. The first is carried out with the aid of free-falling tools which cut the rock, and the second method involves the grinding of the rock into powder and the cutting out of a solid core.

Sinking and Fitting of Shafts.—After the operation of boring has been carried out, then, provided that the seams are likely to prove profitable, shafts have to be sunk in order

that the coal may be obtained. The sinking of the shaft involves first sinking through the surface deposit—which is usually thin and soft, and consequently easy to carry out, although when quicksand or running mud or peat moss beds are met with it may prove expensive and difficult—and then sinking through the underlying strata. It is necessary first of all, however, to consider carefully where the shaft shall be placed. It must be so placed that transit of the coal won is easy by railway, water, or road. Again, if only a moderately deep shaft is to be sunk, and if the dip of the seam is gentle, the shaft may be placed at the lowest point of the field, so that the water may flow, and the loaded trams be carried, to the pit bottom by means of gravity alone. With a large area pit, however, or a deep one, it is usual to place the shaft, where possible, at the centre of the field; for in this case the length of haulage from any part of the mine is not extreme. Except in very exceptional instances, two shafts at least are required under the Coal Mines Regulation Act, and they must be at least 15 yds. apart, with an opening at least 4 ft. square connecting them. One of these is called the 'upcast' and the other the 'downcast,' and both must be provided with winding gear, whether they are both used for purposes of traffic or not. The size of the shaft depends on the output required per day, and incidentally on the length of the lease of the field and the time required to exhaust it. It will further depend on the depth at which the coal lies, and on the number and arrangement of the trams to be carried in the cages, and, further, on the amount of water to be met with. A depth of 4000 ft. is considered to be the greatest at which coal can be profitably worked in Great Britain. Shafts may be either

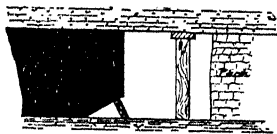


FIG. 1.

circular, elliptical, or rectangular in shape. There are a few square shafts in Scotland, where the rectangular shape is the one most commonly adopted. This shape is also greatly used in America, because it can be lined easier and is economical to sink. The circular form, on the other hand, which is the usual shape

used in England and Wales and on the Continent, can withstand higher pressures, and is consequently better suited for deep shafts, and, further, it offers ventilating facilities, in that a space must be left between the sides and the cages. The elliptical form is used in France, and occasionally in Wales. (For fuller information on this branch, see SINKING.) Having sunk the shafts to the coal seam, a large pillar of coal is left all round the shaft, to protect it and the surface buildings from damage through subsidence. The size of this pillar varies with the depth of the shaft, the thickness of the seam, and the nature of the coal.

Methods of Working.—There are two chief methods of working coal, viz. Pillar-and-Stall, and Longwall. Seams of 4 ft. and more in thickness are usually worked by the Pillar-and-Stall method; those below this thickness by the Longwall method.

necessity of throwing the coal several times to get it to a roadway causes it to break up too much. The rubbish that remains after the coal has been obtained is stacked in the space left. If there is not enough rubbish, the remaining spaces must be held until subsidence no longer matters by timbering. Figs. 1 and 2 show how this timbering and building of pack walls in such a case is carried out. Among the advantages of the Longwall method may be stated the facts that it admits of the employment of a large number of men, ensuring a good output; the coal if 'holed' properly will be brought down to a great extent by its own weight, this saving expense in explosives; the ventilation can easily be managed; few roads are required; and in thin seams coal-cutters can be used to great advantage. On the other hand, it is difficult to keep the roads open, and unless the work is constantly kept

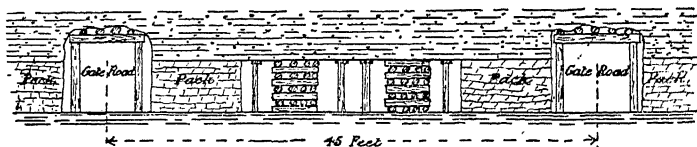


FIG. 2.

FIGS. 1 and 2.—Section and Cross-section showing Roadways, Pack Walls, and Timbering, where Goaf is not completely stowed.

This will depend, however, on the local circumstances in a pit, among these being the inclination of the strata, the depth of the seam, the natural cleavage of the coal, and the presence of water or the nearness to other workings. The Longwall method of working has two variants. One method is to work the whole of the coal outwards towards the boundaries, thus extending the face of the coal and carrying it on. The space left behind, or the 'goaf,' is filled up with the refuse remaining after the coal has been extracted, leaving roadways behind for the hauling of the coal that is won. The other Longwall method consists in driving roads to the outside of the mine and then working the coal back and leaving the rubbish as before. With moderately thick seams this Longwall may be as much as 60 yds. in length, although under ordinary circumstances the length of wall for a 4 ft. seam would be between 12 and 15 yds. The longer the face is, the fewer the roads that need be kept open, and as a consequence the cost of rippings is less. With thin seams the length is a disadvantage, because the

going the ventilation is impeded, while it cannot well be used for thick seams, or in seams that run under towns or other places where subsidence would be dangerous. The Pillar-and-Stall method is extensively used for all seams where the Longwall system is impracticable; usually the stalls worked by this method, sometimes called Post-and-Stall, Bord-and-Pillar, or even Stoop-and-Room, are those over 3 ft. in thickness. There are several modifications of this method, but in general they may be summed up as consisting in driving roads, or 'places,' through the solid coal, and dividing the area into large blocks called 'stalls,' connecting them with through passages, and leaving pillars of coal to support the roof. These pillars and the timbering are then removed, allowing the roof to fall in and fill up the space left after the extraction of the coal.

Timbering.—The roofs of roadways in mines must be made secure and safe for traffic. When the roof is bad, of course it must be done immediately; but even when the roof is good, timbering must be done to keep it good. Timbering is designed to

resist the minor rock pressure caused by the weight of slate immediately above the roof, often several feet in thickness. The major rock pressure is irresistible, but the cracking of the wood gives warning of any danger arising from this pressure. About 50 per cent. of the fatal accidents in mines are due to falls, so that spragging and propping is a necessity. In Northumberland and Durham there is a special body of men in each pit to look after and do this work; while in Wales, Lancashire, and Scotland the colliers do all the timbering in their places, and sometimes even back in the roadway. At the face of the coal single props are set with a 'lid' on them, which may be either square, half round, or round. This lid spreads the weight over a bigger area and prevents the support from being crushed. Sometimes the feet of these props are

bar is a steel girder; further, for main haulage ways, which have to be kept open for a long while, recourse is often had to the building of brick arches or of perpendicular walls holding up steel girders resting on wood. The timber used is usually pine or fir, and the method used for preserving it, when any method is used, is one of the following: soaking in brine, impregnation with metallic salts, such as sulphates of copper and iron, coating with tar, soaking in creosote, or keeping it wet. Steel timbering has come into use, as it is not so cumbersome as wood and is fireproof, and not so liable to the decay which with wooden timbers vitiates the atmosphere. Corrosion of steel can be avoided by painting, but steel does not give any indication before breaking of an increased major pressure, due *e.g.* to a 'squeeze' in the rock. Thus a steel-timbered

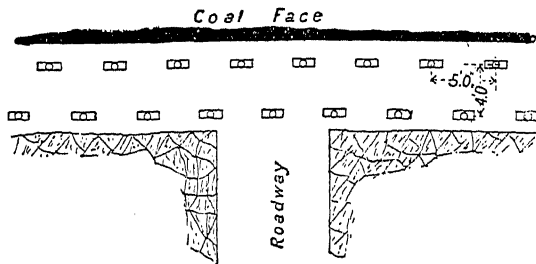


FIG. 3.—Plan showing Systematic Timbering.

pointed, to prevent them crushing up when the weight comes and forces them on to a hard floor. If the floor is soft, then a sole piece is put under the support as well as above it. Another method, but used for main roads, is that of building up chocks, which consist of layers of wood laid horizontally, with others laid across them horizontally, this being repeated until the required height is obtained. A method which is gradually being adopted in all the coalfields is that known as 'systematic timbering.' Fig. 3 shows the method being applied at a Longwall. Of course with good roofs the distances of the various supports will be less than when the roof is bad. Roadways are usually roofed by means of a crossbar and props, although when only the roof requires strengthening, a cross-bar alone is sometimes used. Where main roads are wide, the cross-bars are sometimes supported by a centre prop, while very often the cross-

bar may fall without any of the warning that wood gives, and with more disastrous results. In English collieries experiments have been carried out in the use of cast-iron cylinders as metal props. They may be made adjustable to the height of any seam.

Winning the Coal.—The chief work of the miner is that of cutting and breaking down the coal. His tools consist of picks of various kinds for rock and coal-cutting, shovels, hammers, wedges, jumpers, and (in some cases) the tools for charging holes for explosives, viz. scraper, needle, and stemmer. Among the machines used in the pits may be mentioned hand drills of various kinds for boring short holes instead of using jumpers; machine power-drills worked by electricity or compressed air; coal-cutting machines, which are of great use in thin seams which could not otherwise be worked with a sure margin of profit. These machines are usually used in Long-

wall working, and are divided up into heading, disc, chain, bar, and percussive machines. The first cuts out a solid ring of coal by means of a rapidly revolving two-armed cutter, leaving the ring to be wedged out. As its name implies, it is used for cutting roadways or headings. The second is one of the most general type, acting in principle like a circular saw, except that it is laid horizontally instead of vertically. The chain machine acts like an ordinary hand saw, with the additional fact that it can move under its own mechanism. The bar machine, again, is an improvement on the disc machine, and its essential feature is a circular steel bar which has a number of teeth for cutting fixed to it; while the percussive machine, perhaps with the disc the most generally used machine, cuts the coal by means of a series of blows. These machines may be

damp, gunpowder or any of the low explosives may be used, but in mines where gas is present in great quantities, or where the mines are not naturally damp, recourse must be had to some of the high permitted explosives, which are supposed to prevent flame communication in the presence of fire-damp. Among the best known of these are blasting gelatine, dynamite, gelignite, carbonite, and roburite. Blasting can only be performed by a man called a shot-firer duly appointed by the management, who must keep all detonators or means of firing shots under his own control. The use of explosives is practised in the U.S.A. to an extent nearly four times as great as in England. This is partly due to the thicker and more easily-worked seams found in America, but the death-rate of workers is about three times as high as in

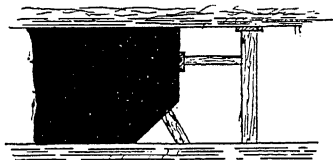
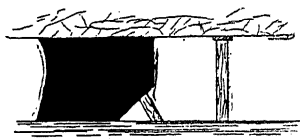


FIG. 4.—Method of 'Spragging' in Tender Coal.



Ordinary Method of 'Spragging' Coal.

worked by electricity or compressed air. Now all coal seams except anthracite have cleavage planes. There is always one direction along which the coal yields most easily, and this is known as the 'cleat' or 'back.' It sometimes happens, however, that the joints in the roof coincide with the cleats in the coal, and if the roads are driven in that direction, falls will occur. As a result, therefore, roads are driven either at right angles to this, or 'half on end,' i.e. at an angle of 45° to the main cleat. In the ordinary cutting of coal in the Longwall, it is usual to undercut or hole the block of coal to a depth of from 3 to 6 ft., the coal being meanwhile held up by sprags: Fig. 4 shows the methods used for spragging in both tender and ordinary coal. Then in the case of soft coals the sprags are removed, and the mere insertion of a wedge at the roof brings the lot down under its own weight. With harder coals it is necessary to use a mechanical wedge in a previously drilled hole, or, as is more common, to blast it down with the aid of an explosive. Where there is no gas present, and where the mine is

Great Britain. The greatest danger from shot-firing underground is the release of poisonous gases.

Haulage of Coal Underground.—The coal as it is cut is filled into trams by boys or men, who then push the tram to a horse- or engine-hauling branch. Usually a number of trams are collected from several headings by a haulier with a horse, which drags the trams—on rails all the while, of course—to the nearest spot where they can be gathered up in the power haulage system which brings the coal to the pit-mouth. Trams or mine-cars are built of wood, steel, or steel alloyed with copper to prevent corrosion. The advantage of the steel car is its greater capacity, although of the same dimensions as the wood car. If horses or mules are used for haulage, the gradient should not exceed one in a hundred. In English mines ponies are used; in American mines mules are preferred. Animal-haulage, however, can be replaced by engine-haulage, and locomotives may be driven by steam, petrol, electricity, compressed air, or storage battery. Steam-locomotives are not advisable owing

to the risk of fire, but they can be used in anthracite mines. Absolute safety from fire is only obtained from compressed-air and storage-battery locomotives. Electric motors have many advantages, and their use may be combined with that of compressed-air engines, the latter for use in those parts of the mine where wires have not been fixed for conveying the electric power. In those mines where the shaft bottom lies lowest of any part of the field, the jig or self-acting plane can be brought into requisition. In this the loaded trams, running down-hill, pull empty ones up by means of a wire rope running round a pulley at the top of the incline. This is varied sometimes by the use of only one set of rails, a balance weight between them alternately pulling up an empty truck and being drawn up by a full one coming down. Then when the

iron, which may have from one to five decks to hold one or more trams (two decks, each holding two trams, being most common). These cages are hauled up and down—it being usual to have two cages in each shaft, one ascending while the other descends—by flat, circular, or tapered hemp, iron, or steel ropes, being conducted by wood, iron or steel, wire-rope, or iron rod, guides, by means of 'shoes' attached to them. Modern conditions of mining at great depths require flattened-strand steel wires of a tensile strength of about 100 tons per sq. in. Winding-engines are driven either by steam or electricity, the latter being the more advantageous if the mine is situated near an electric supply plant. The smooth working of electric engines avoids jerkiness of winding and prevents rope-fatigue. Hoisting is sometimes carried out by the skip

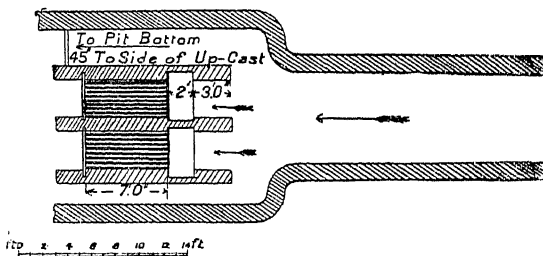


FIG. 5.—Ventilating Furnace.

gradient is the other way, a direct rope-power haulage is used. The full trams are wound up by the aid of a revolving drum, which can be thrown out of gear so as to allow the empty trams to run back under their own weight. If the gradient is irregular and the empty tram fails to run back entirely under its own weight, then another rope, called a tail rope, is added, which pulls the empty one back while pulling the full one up, the tail rope running from wagon to wagon round a pulley at the far end of the haulage system. Another system is that of endless rope haulage, in which an endless rope is constantly revolving over pulleys, around two sets of rails. The trams are fastened to this rope in various ways, and so hauled along, while a variation of this consists in using a chain instead of a rope, and going at a slower speed.

Coal Winding.—When the coal reaches the pit-bottom, the trams are run into cages of steel or wrought

iron, which may have from one to five decks to hold one or more trams (two decks, each holding two trams, being most common). These cages are hauled up and down—it being usual to have two cages in each shaft, one ascending while the other descends—by flat, circular, or tapered hemp, iron, or steel ropes, being conducted by wood, iron or steel, wire-rope, or iron rod, guides, by means of 'shoes' attached to them. Modern conditions of mining at great depths require flattened-strand steel wires of a tensile strength of about 100 tons per sq. in. Winding-engines are driven either by steam or electricity, the latter being the more advantageous if the mine is situated near an electric supply plant. The smooth working of electric engines avoids jerkiness of winding and prevents rope-fatigue. Hoisting is sometimes carried out by the skip

or bucket system, but the disadvantages of this are the breakage of the coal and the necessity of dumping coal at the bottom of the shaft, coal-dust being inflammable.

Mine Gases.—Carbon dioxide, carbon monoxide, and methane are usually known as mine gases. Other gases, such as ethane and some hydrocarbons higher than ethane, are only rarely present in small quantities. Carbon dioxide or black-damp is sometimes given off from the coal, and also forms in the slow oxidation of coal. It occurs in mine fires of any kind or in the 'after-damp' following explosions of methane and coal-dust. Carbon monoxide or white damp is the most dangerous of the mine gases. The chief danger from 'gob fires'—the spontaneous combustion underground of fine coal or slack—is the production of carbon monoxide. It is explosive when mixed with air in right quantities, and in a pure state does not support life. Methane, a

light carburetted hydrogen, known as marsh gas or firedamp, is the most common of the mine gases. It is given off from all coal, especially the soft bituminous coal, sometimes escaping in a large quantity, called a 'blower.' Methane is explosive when mixed with air in the right proportions.

Ventilation.—The air passing through a ventilated mine gives up some of its oxygen to the coal, while some also is used up in breathing, combustion, etc., and in its place it takes up a proportion of mine gas.

The mine code of Great Britain (1914) decrees that the air is bad if it contains either less than 19 per cent. of oxygen or more than 14 per cent. of carbon dioxide. The composition of the air at its exit from the mine may be ascertained. Four methods of ventilating are employed—viz. natural ventilation, by waterfall, by furnace or steam jet, by fans. If the density of air is the same in the two shafts, no current of air will flow, so it is necessary to induce a difference in pressure in these two shafts. If a steam jet, or furnace, be applied at the upcast, or by reason of natural ventilation, the gases will flow up that tube. If, on the other

hand, a pump, or a waterfall, or a compressing fan be applied at the downcast, then fresh air will be induced to flow down there. Again, if the air be exhausted from the upcast by means of exhaust fans, then the same result, a flow of air, will be achieved. The methods now in main use involve the use of fans or pumps, although furnaces are still used in the N. of England. Fig. 5 shows the arrangement of a furnace at the pit-bottom, and its action, which depends merely on the fact that heated air has a lower density than cold, and therefore rises. Furnaces, however, are not allowed in gaseous mines, and fans are more generally employed. They are used either at the downcast as compressors, in which case this shaft must be closed in, or at the upcast as exhausts. Now this air has to be guided through the whole of the mine by means of air crossings, trap-doors, brattices, etc. When an 'intake' crosses a 'return' current of air, one road is taken over the other. Then trap-doors are required (Figs. 6 and 7) which will close automatically. Brattice cloth and wood frames (Fig. 8) have to be resorted to very often to guide air into stalls. As an illustration of the use of brattice cloths in ventilating close drifts, see Fig. 9. The air current should be kept humidified, in order

to avoid the danger from coal-dust, which does not ignite readily when damp.

Pumping.—The quantity of water varies in different pits. When the amount is small and the pit deep, much of it may be drained off by tanks hauling it to the surface. As a rule, however, more pits are installed with one or more of the various kinds of pumps. One form has the pumping engine at the surface, with rods leading down the shaft and pumping the water from the 'sump,' i.e. the part of the shaft

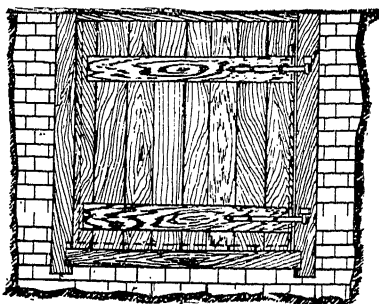


FIG. 6.

below the workings. Another form has engine and pump at the pit-bottom, the steam being carried down to it from the surface, if steam is used. Electricity, however, is in great use, and now it is usual to have several auxiliary turbine pumps at various points in the mines.



FIG. 7.

Figs. 6 and 7.—Trapdoor.

Lighting of Mines.—The danger of using candles and open lamps for lighting is that the presence of methane or firedamp causes instant explosion. Several types of oil safety-lamps are in use, being variations in design of the Davy, Stephenson, and Clanny lamps. (See DAVY LAMP.) Electric safety-lamps are now made of satisfactory design, either to be carried by hand or worn in the cap. They have obvious advantages over the oil lamp, and are very popular, especially in the U.S.A. and Canada.

Sorting and Cleaning.—When the coal reaches the surface, the trams are run on to the weighing machine and the weight is registered. They are then run on to 'tipplers' or 'tumblers,' where the coal is thrown on to either a fixed bar or a jigging screen, separating the small from the large coal. The large coal passes on travelling belts to a movable table,

for Minerals; O. Guttman, *Blasting and the Use of Explosives*; J. Riemer and J. W. Brough, *Shaft Sinking in Difficult Cases*; Redmayne, *Colliery Working and Management*; Tonge, *Principles and Practice of Coal-Mining*; J. Kirsopp, *Use of Power in Colliery Workings*; E. N. Zern, *Coal Miner's Pocketbook*; E. T. Devine, *Coal*; and *Historical Review of Coal Mining*

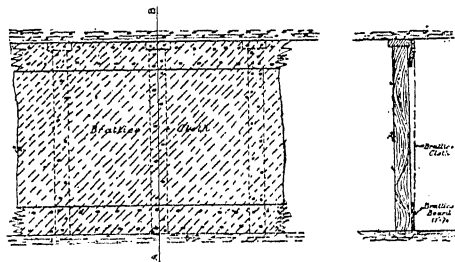


FIG. 8.—Wood and Cloth Brattice.

where pieces of shale and rock are removed. From there it is either further screened or else emptied direct into railway trucks waiting underneath. Small coal in particular, and some poor qualities of large coal, are so full of impurities that they can only be cleaned by washing. Among all the different varieties of

published for the Mining Association.

Coal Subsidy, a special national measure resorted to in times of industrial instability to encourage production of coal. The C. S. may be either direct in the form of a Gov. grant or indirect in the form of favourable rates for home produce.

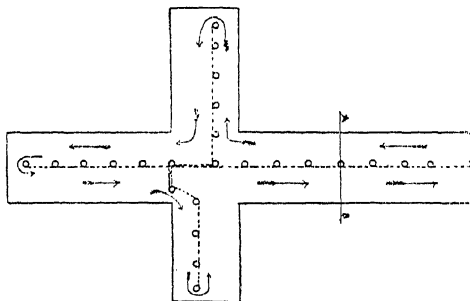


FIG. 9.—Ventilating Close Drifts.

coal washers, the principle utilised is the same: the dirt is washed to the bottom and is carried away while the coal remains. See G. L. Kerr, *Elementary Coal-Mining* (publishers C. Griffin & Co., to whom we are indebted for the illustrative diagrams); G. L. Kerr, *Practical Coal-Mining*; H. W. Hughes, *Text-Book of Coal-Mining*; Professor Cox, *Prospecting*

A subsidy, direct or indirect, enables domestic prices to be raised and export prices lowered. It affords a temporary benefit for one country, but when counteracted by similar measures in other countries, tends further to depress world prices. As instances of an indirect C. S. may be cited the Ger. prohibition on imported coal save under licence,

and in Spain the state railways and municipal services are run on domestic coal up to a certain percentage. In July 1925 a threatened stoppage of the coal industry in the United Kingdom was met by a direct subsidy, which enabled wages to be paid for a period of nine months. During this interval the Samuel Coal Commission issued its report, condemning the principle of the C. S. Besides artificially maintaining wages, the result of the C. S. was to reduce the selling price of coal by 3s. per ton. It was withdrawn in May 1926, having cost the Gov. £23 millions. It postponed but did not avert a stoppage of the industry, which brought about the General Strike 1926.

Coal Supplies. On the initiative of the XII International Geological Congress, which met in Toronto in 1913, an inquiry was made into the

the subject, one being under the chairmanship of the Duke of Argyll, and the other under Lord Allerton. The first of these commissions published its report in 1871, and the conclusion reached was that the attainable amount of coal in the known coal-fields was 90,207 million tons, and the probable amount available in other places was 56,273 million tons, thus making a total C. S. of 146,480 million tons. The second commission on C. S. reported in 1905 that the net estimate of unworked coal was 100,915 millions of long tons. This allowed for all possible losses, but at the same time it was recognised that inferior coal and small coal, hitherto discounted, had become of use to several important industries, such as the patent fuel trade and the gas and by-product industry. In 1913 Dr. Strehlan compiled the report in Great Britain

TABLE I.—SHOWING THE ACTUAL, PROBABLE AND POSSIBLE RESERVES.
(Million Metric Tons. 1 metric ton = 2,204·6 lb.)

	Anthracite	Bituminous	Lignite	Total
Africa	11,662	45,123	1,054	57,839
America	22,542	2,271,080	2,811,906	5,105,528
Asia	407,637	760,098	111,851	1,279,586
Europe	54,846	693,162	36,682	784,190
Total	496,187	3,769,463	2,961,493	7,227,143

C. S. of the world. Actual world resources were estimated in metric tons at 716,154 million, while the possible and probable reserves totalled 6,681,399 million. Table I gives the distribution of these resources according to continents.

A list of the chief coal-producing countries and their production is given in Table II.

United Kingdom.—It will be seen from Table III, which shows the output of coal in the United Kingdom from 1920 to 1928 and the amounts exported, that a vast amount of British coal is exported all over the world; it can further be noticed from our knowledge of the coal-fields (*q.v.*), that whereas the U.S.A. coal-fields are eighty-three times larger than the British fields, yet there is but little more than twice as much coal produced yearly in America as in the United Kingdom. In view of the enormous output of the United Kingdom fields and their comparatively small size, fears have been aroused for, and much thought has been given to, the possible exhaustion of our C. S. Two Royal Commissions have thoroughly studied

for the XII International Congress, basing his statistics on the findings of the 1905 Commission, modified, however, by further exploration. Estimates were reckoned to a depth of 6000 ft., as against the 4000 ft. hitherto held to be the limit, and the total reserve of coal for the United Kingdom, including Ireland, was put at 189,434,749,920 metric tons. Less than 10 per cent. of this reserve is anthracite. The Samuel Coal Commission, 1925, basing its assumption on the figures of previous estimates, reported that at the present rate of output the actual reserve of coal, mined at a depth of 4000 ft., would last five centuries. Taking into account all probable reserves, including the possibility of mining at a depth lower than 4000 ft., the reserve would last seven centuries or more.

United States of America.—The American coal trade was fully established in 1820, although the output was not then very large, when the Schuylkill Navigation Co. sent coal down the Lehigh and Delaware rivers to Philadelphia. Up to the year 1870 the C. output of the

TABLE II.—SHOWING THE QUANTITY OF COAL PRODUCED IN VARIOUS COUNTRIES OF THE WORLD (in long tons).

COUNTRY	1926.	1927.	1928.
U.S.A	587,325,389	533,802,603	544,368,785
Germany	278,953,845	299,300,379	312,091,817
Great Britain	126,278,521	251,232,838	237,472,571
France	65,107,031	65,402,291	65,501,133
Poland	35,257,593	37,559,826	40,047,303
Russia and Siberia	25,376,220	32,026,639	34,657,125
Czecho-Slovakia	32,176,329	33,105,688	34,458,764
Japan	31,088,799	33,176,829	33,470,813
Belgium	24,860,659	27,105,831	27,107,780
India	20,999,167	22,082,336	22,542,872
China (estimate)	22,000,000	18,000,000	—
Canada	14,712,617	15,559,697	15,663,476
Australia	14,232,938	14,978,442	13,401,638
Union of S. Africa	12,745,492	12,381,692	12,407,539
Netherlands	8,679,474	9,374,069	10,941,176
Hungary	6,544,189	6,918,226	7,176,676
Spain	6,826,373	6,882,100	5,443,286
Yugo-Slavia	4,075,354	4,671,240	4,972,092
Austria	3,065,839	3,188,503	3,409,948
Rumania	3,005,326	2,172,558	2,979,429
New Zealand	2,239,999	2,366,739	2,436,753
French Indo-China	1,269,881	1,467,162	1,938,463
Formosa	1,766,169	1,772,005	1,513,000
Dutch E. Indies	1,443,200	1,594,616	—
Chile	1,466,968	1,458,113	—
Bulgaria	1,186,713	1,218,099	1,387,736
S. Rhodesia	860,338	894,396	1,077,557
Mexico	1,288,462	1,015,020	999,787
Turkey	1,215,099	892,310	917,924
Italy	1,368,639	1,063,813	812,290
British Empire	193,000,000	320,000,000	305,000,000
Rest of World	1,145,000,000	1,123,000,000	1,134,000,000
World Total	1,338,000,000	1,443,000,000	1,439,000,000

TABLE III.—SHOWING THE OUTPUT OF COAL IN THE UNITED KINGDOM, AND THE QUANTITY EXPORTED, INCLUDING BUNKER COAL FOR THE NINE YEARS 1920-1928 (in thousands of long tons).

Year	Total output	Exports		
		Anthracite coal	Bituminous coal	Bunker coal
1920	229,532	1,641	23,291	13,840
1921	163,251	1,464	23,197	10,926
1922	249,607	2,520	61,678	18,259
1923	276,001	3,182	76,278	18,158
1924	267,118	3,084	58,567	17,689
1925	243,176	3,014	47,803	16,436
1926	126,279	1,337	19,259	7,588
1927	251,233	3,129	48,019	16,836
1928	237,473	3,157	46,898	16,729

U.S.A. was less than either that of Great Britain or Germany. Then, in 1871, the U.S.A. began to pass Germany, and from 1877 onwards completely left Germany behind. Great Britain's output was passed in 1899, and the U.S.A. are now producing nearly one-third of the world's C. S. Table IV gives the total output of coal from the U.S.A., together with the export figures for the years 1920-1928. The total area estimated to contain coal-beds is close on 500,000 sq. m., of which about 250,530 contain anthracite and bituminous C., about 100,000 varying grades of bituminous, cannel, and lignitic C., and the rest ordinary lignite. In the 1913 estimate for the Geological Congress the original tonnage of all kinds of coal on levels above 3000 ft. was reckoned at 3,225,394,300,000 metric tons. The

valuable because it is the starting point of these by-products. The tar obtained from brown coal and bituminous shale is the foundation of the manufacture of paraffin and mineral oils. Generally, however, C. T. is a by-product in the manufacture of coal gas, and is not as a rule considered to be the principal product. Only during the last half century has it become of any importance even commercially. It is interesting to note, however, that Becher and Serle, who took out the first patent for the destructive distillation of coal, in 1861, did so to get C. T. and pitch, not coal gas (Lunge). It is since it has been discovered that artificial colouring matters can be obtained from it that C. T. has become of value commercially. Previously, it used to be burned under the gas retorts, and for making roofing-

TABLE IV.—SHOWING THE OUTPUT OF COAL IN THE U.S.A. AND THE QUANTITY EXPORTED, INCLUDING BUNKER COAL, FOR THE NINE YEARS 1920-1928 (in thousands of long tons).

Year	Total output	Exports		
		Anthracite coal	Bituminous coal	Bunker coal
1920	587,737	4,825	34,390	9,362
1921	452,139	4,176	20,653	7,548
1922	425,849	2,366	11,083	4,116
1923	587,407	4,545	19,155	4,547
1924	510,369	3,587	15,269	3,989
1925	522,129	2,838	15,591	4,344
1926	587,325	3,598	31,493	6,907
1927	533,802	2,969	16,082	4,076
1928	544,368	2,979	14,432	3,834

total production of coal to the end of 1910 was 7,480,355,040 metric tons, and an amount equal to half this figure was allowed for waste; it followed that 11,220,532,560 tons out of the original tonnage had been exhausted, leaving a reserve of over 32 hundred millions.

Coal Tar, one of the products obtained from the destructive distillation of coal, the others being coal gas and ammoniacal liquor. It consists chiefly of aromatic hydrocarbons, and is usually the heavier of the two condensed products, being a dark-coloured viscid oil. The composition of the tar, however, varies greatly according to the temperature at which it is distilled, or even with the shape of the retort. These hydrocarbons can be separated from one another partly by fractional distillation, they having different boiling points, and C. T. to-day is chiefly

felt. For this latter purpose it had to be deprived of its more volatile constituents, benzene being formed in this manner. Again, heavy oils were distilled from it and used for preserving wood, light oils giving naphtha. In 1856, however, the aniline colours were discovered and prepared from benzol, which is obtained exclusively from C. T. A description of the constituents of C. T. cannot be given within the scope of this article, but the following gives some idea of the various products obtained from C. T. Distilled up to 140° C. benzol is obtained, while redistillation of this and a further distilling up to 170° C. yields solvent- and burning-naphtha; heated from 170° to 230° C. the light oil, naphthalene, and carbolic acid are given. Further heating from 230° to 270° C. results in the formation of creosote oil and lubricating oil, these

being known as the heavy oils. Beyond this, *anthracene oil*, *anthracene*, *lamp-black*, *pitch*, and *coke* are obtained. The processes are not so simple as they seem, however, and in practice the specific gravities are noted, as well as the temperatures, the products sometimes forming at temperatures lower than those given above. Further, in the later stages of distillation, some of the earlier products are formed, and have to be separated out. C. T. is of enormous importance on account of the vast number of indispensable substances prepared from its various constituents. Benzene, C_6H_6 , the principal constituent of the lowest boiling-point fraction, is used not merely as a motor-car fuel, but also as the starting-point for the preparation of aniline, phenol (carbolic acid), picric acid, and innumerable other bodies in general employment as explosives, dyes, disinfectants, drugs, and photographic reagents. Naphthalene and anthracene are the parent substances of large and important series of dyes, while creosote oil is used to preserve wood and for general disinfectant purposes. Pitch finds application in the manufacture of coal briquettes and in the paint and varnish industry. 'Prepared tar,' which is C. T. from which only the more volatile constituents have been distilled off, is widely employed as a binder in road-making. During the Great War, most of the high explosives as well as tear-gas, etc., were made from substances occurring in C. T., and the research then expended on the subject has borne fruit in later years, particularly in the manufacture of synthetic perfumes and in the preparation of pure organic chemicals for bacteriological, medical and pathological work. Several million tons of C. T. are produced annually in Great Britain, the U.S.A., Germany and France, one ton of coal yielding on an average about one cwt. of C. T., or about 11 lb. of benzene and other valuable products, excluding the pitch. See articles on the various substances named above, and read: G. Lunge, *Coal Tar and Ammonia*, 1916; J. J. Redwood, *Mineral Oils and By-Products*, 1897; A. R. Warnes, *Coal-Tar Distillation*, 1923.

Coal-tit, **Coal-titmouse**, or **Coal-mouse**, the popular name for the *Parus ater*, or *Parus britannicus*, a small species of *Paridae* with a black head and dull-coloured body.

Coal Trade. Various laws have been passed regulating the C. T. From very early times the Corporation of London used to weigh or measure all coal brought into the

port, while the mayor and aldermen of London and the justices of the counties could also, by virtue of Acts of Parliament dating back to Edward VI.'s reign, fix the retail price of coal. Further, general taxes have been levied on coal at different times. At one time the Corporation of London could exact these dues. In 1667 they were exacted to aid in repairing the damage done by the Great Fire, and they were continued till 1889, and the proceeds used for civic improvements. In William III.'s reign a tax was levied on sea-borne coal. This tax was abolished for a short time in 1830, re-exacted in 1842, and dropped in 1845. From 1901 to 1906 there was a tax of one shilling levied on every ton of coal exported from this country. Up to 1913 the C. T. prospered under individualistic control, and immediately after the Great War the coal industry was in better working condition in England than in the rest of Europe. In 1921 came a depression with a mining stoppage of three months. The C. T. improved in 1922, until in 1924 foreign competition began to have its effect, and in 1925 500 of the British mines were closed. A stoppage of seven months followed in 1926, during which year the U.S.A. nearly doubled their exports and a great stimulus was given to the European C. T., especially in Poland. In 1928 the Yorkshire and Midland coal-fields were combined under the Central Collieries Commercial Association, based on the Rhinish-Westphalian Syndicate, which since 1893 had rationalised the German C. T. with marked success. The C.C.C.A. and similar marketing schemes in Scotland and S. Wales regulate the output and stabilise the prices of over 60 per cent. of the national production. These schemes attempt to overcome the inter-colliery competition, due to the individualistic traditions of the coal-owners, and to eliminate the profits of the middleman, thus paving the way towards a national selling organisation for the export trade. The U.S.A. have now entered European markets, and in 1929 150,000 tons of American coal were exported, chiefly to Italy. The increase of production of American coal, and consequently of American C. T., is due to technical administration and a high standard of output due to machine-cutting. Output per man has risen from 3.73 tons in 1913 to 4.78 tons in 1927. Figures for British and American export trade are given under **COAL SUPPLIES**. See also R. C. Smart, *The Economics of the Coal Industry*, 1930.

Coalville, tn. and dist., Leicester-shire. The town is 5 m. distant from Ashby-de-la-Zouche and 16 m. from Leicester. Coal mines are in the district. Pop. 20,470.

Coanza, or Quanza, one of the main rivers of the Portuguese W. African country of Angola; it flows in a N.W. course and finally reaches the Atlantic, where it has attained to a breadth of 1 m., owing to the many falls as well as tributaries which have contributed to its bulk on its journey to the sea. The river is unnavigable in parts owing to the Cambambe Falls, but it can be navigated for a distance of 120 m. from its mouth as far as these falls.

Coast (Lat. *costa*, a rib), the border of the land as it meets the sea, forming a shore line of more or less irregularity of contour, according to the various causes which have been at work. Though the sea-coast is generally meant when the word C. is used, it is also applied to the shores of large rivers and lakes. Many elements combine in producing the various types and varieties of Cs., of which the broad outlines may be described, though, of course, no two Cs. are exactly alike in detail. The chief agents in the sculpture and formation of the C. are the currents of the sea and the erosion caused by the waves; these agents have to work on widely different kinds of material, as some Cs. are of hard rock, others of sand, and others again of heterogeneous rocks. The waves formed by the winds run ashore and beat upon the land, the C. of which is gradually worn away by this unrelenting and unrelenting attack; the land which is washed away is carried into deeper water, and so the area of the land is reduced. The character of the C. has a great effect on both the coastwise trade and the international trade of a country; for neither form of commerce can attain great proportions unless there is a sufficiency of safe harbourage for the vessels engaged in it. Shore-lines in their original form, that is to say, before they were changed by the action of the sea, may be divided into two main categories. The first class is that produced by the land having been raised, the second where it has been lowered. Where the sea lies on an uplifted bottom, the shore-line would be of an unbroken and simple character, and would be bordered by shallow water. The shore-line would be of a broken and more complicated nature, and bordered by deeper water, where the sea lies on a depressed land surface. Shore-lines belonging to the first category are generally deficient in harbours, and traffic between land

and sea is by no means easy. As an example the C. line of Buenos Aires may be cited; the waters are shallow for a long distance from the shore-line, and artificial harbours have to be dredged before vessels of any size can approach close to the land. The shore-lines of the second class are, as a rule, well supplied with harbours situated in sheltered bays. An irregular C. is favourable to the development of the maritime arts and to the breeding of expert sailors and fishermen; among examples of shores of this class may be mentioned those of Patagonia and Norway. If the C.-line runs parallel to a mountain range, it is, as a rule, of a more regular character than when it crosses the folds of the range. A recently elevated C. is more irregular in outline than one which has been exposed to the action of the waves for a long time. The irregularities which were impressed upon the surface of a recently depressed C. before submergence took place will be traceable in the C.-line. If a C. is composed of homogeneous rock, and the action of the waves is similar along its extent, the outline formed will be regular; if, however, the rocks composing the C. are of varying degrees of hardness, bays and inlets will be eaten out of the softer rocks, and headlands, etc., will be formed of the harder rocks. The same results will be obtained if the rocks of the C. are homogeneous, but the action of the waves varies, as where the waves are more violent bays will be formed. In shores of the first class, the waves of the sea, especially in stormy weather, beat up the sands of the bottom, and in course of time build sand-reefs off the shore. These reefs enclose long, narrow lagoons; the finer particles which compose them are swept away, but the reef is not destroyed thereby, for the loss occasioned is repaired by the sand which is brought in from the sea bottom. The ebb and flow of the tides and the action of the rivers preserve inlets through the reefs; the number and size of these inlets are, of course, regulated by the strength of the tides. On the C. of Texas there are few inlets, and traffic between land and sea is cut off for long distances; one reef extends for nearly 100 m. with no inlets. On the C. of S. Carolina, where the tidal action is very strong, the inlets are very numerous, and traffic is not so much impeded. The depth and even the outline of the channels on Cs. of this nature may be changed so rapidly by the action of tidal currents that charts are unreliable, and local pilots must be employed by the captains of vessels. Tidal deltas are also formed

by the action of the tides, and their outer edge often forms a bar which is only navigable at high tide. When the sand is brought to a reef in greater quantities than it is carried away, the reef advances into the sea, and may be a mile or more wide; at Atlantic City, in New Jersey, America, the reef is gaining on the sea in this manner. If, on the other hand, more sand is carried away than is gained, the reef gradually becomes smaller, and at length disappears, when the mainland is once more exposed directly to the action of the sea; the low C. of the middle Netherlands has thus retreated. It is of rare occurrence for coastal plains to end in cliffs which are at a great height above the sea. Such a phenomenon would be of comparatively frequent occurrence if the action of the sea on a coastal plain were uninterrupted for a long time; it is therefore inferred that such a development is generally interrupted by either a subsidence or an upheaval of the land. The best example of the results of such an uninterrupted development may be seen in the coastal cliffs of Normandy in France. The progress of formation of C.-lines of the regular first class is often interrupted by depression of the land. The C. is then changed into one of the second class, though the bays and headlands will not be of extraordinary magnitude. In the same way, the land may be elevated and interrupt the C. formation, but in such cases the effects are not so easily visible. The former C.-line will be marked by low sand dunes and ridges, if no very advanced stage of development had been reached before the upheaval, or by higher terraces and bluffs, the height of which will vary according to the progress made. The coastal plain of Mexico, for example, is marked by several terrace-like benches or steps; it is inferred from this that the elevation of the country took place gradually, thus giving time for the effects of the action of the sea between each upheaval to be perceptible. When an uneven land surface is partly submerged, the valleys become bays and the hills islands. The forms of the land present more variety than those of the sea bottom, and hence shores of the second class are more varied in outline. The sea's action will be greatest on the projecting headlands and outlying islands. The rock fragments, weathered from the C., after being rounded by the action of the waves, grind the rocks at their base and cut a notch in the edge of the land. The base of the cliff thus formed is worn away by the dashing of the waves, great masses of rock fall, and the shore is gradually worn away. Iso-

lated rocks, 'needles,' and columns, are often left off the shore in such cases; the 'Old Man of Hoy,' in the N. of Scotland, is an example. If a shore line of the second class suffers a further depression, the sea will begin its action on the cliffs in much the same way as before; the lines of the C. will naturally be altered, and the former islands will in many cases be submerged. When an upheaval takes place, the former C. line may be traced at some distance from the new one; the cliffs and beaches which composed it are distinct at first, but in course of time are affected by the weather, and become merged in the general character of the land. Along the western C. of Scotland there are evidences that the land has been uplifted for 20 or 25 ft.; the cliffs of it stretch inland, and the former C. line was more advanced in character than most of the present C. The bays of the former shore-line, when elevated, form coastal plains lying between rugged headlands; such formations form most beautiful scenery, and abound along the shores of Italy. The western C. of Norway now stands some hundreds of feet higher than in former times, as is evidenced by the platform, or bench, of low land which borders the mountains which formed the anct. sea cliff. From the fjord and its configuration of the C., it is probable that after the platform mentioned above had been cut, the land was raised even higher than it now is, and was eroded by glaciers. A depression then took place which drowned the valleys and created the present multiplicity of is. Where one part of the cliff is weaker or composed of softer rocks than the rest, the waves in time excavate a cave; among the numerous examples of such, Fingal's Cave on the is. of Staffa, Scotland, and many caves on the C. of Maine, America, may be mentioned. Shore-lines are affected by climate and temperature as much as the land. In Arctic climates the land is bordered by a fringe of ice, known as the 'ice foot.' In the equatorial and warm seas certain kinds of trees grow on the shores and impede landing; of these the most important is the mangrove tree. Coral reefs also are found in these waters (for their formation and action, see ATOLL, CORAL, GREAT BARRIER REEF, etc.). The waves and currents of lakes are not so violent as those of the open sea, but the Cs. of lakes exhibit many features analogous to those of sea-Cs. The S. shore of Lake Erie, for instance, has been washed away so as to develop low cliffs of a fairly even front for many miles. When lakes are formed at the

back of barriers of glacial drift, their waters may rise upon a land surface of much irregularity, and the Cs. of the lake thus be of very varied character. Lake Lucerne, Lake of the Woods, and Lake Superior are examples of irregular lakes. The indication and measurement of C. lines vary on maps according to the scale thereof, as it is, of course, impossible to show as much detail on a small-scale map as on a large one. When the scale is very large, two C. lines will be shown, the one showing the position at high-water, the other at low-water mark. The measurement of the C. line is also a matter of some difficulty, as when all irregularities possible are included, the length is of necessity greater. There are two methods of measuring; the first way is simply from point to point of the headlands of the C. The other way is to include every bay and inlet, and to measure up every river to the point where the action of the tide ceases. The ratio between these measurements is an indication of the coastal development of the country measured.

Coast Defence, required by a maritime nation to protect her commerce in time of war. The systematic defence of the coast by means of fortresses is a necessary protection to the navy, and such defences serve as a basis of operation and a safe harbour to the fleet. These fortifications also afford protection to the magazines and collected stores and materials, with which the fleet may be speedily equipped should war break out suddenly. Large inlets, bays and river mouths are usually chosen as the safest site. It must also be remembered that such depôts, etc., are liable to attack by land as well as by sea, and must be protected against attacks in the rear and flanks. The fortress, then, must be able to obstruct any entrance on the part of the enemy by cutting off any side channels, while leaving, at the same time, a free entrance to the home fleet. The fortresses are equipped with torpedo-boats, bomb-proofs, search-lights, etc., and a strong artillery is essential for the proper defence thereof. In Great Britain the C. D. is procured by means of a group of one or more fortresses, set at a certain distance along the sea coast. In each fortress is a fixed armament of heavy and light batteries and quick-firing guns, which are used particularly to withstand a frontal attack by sea. There is also a movable armament of machine guns for use in a rear or flank attack by land. A large fortress is divided into sections, so that, by scattering the forts, the enemy may be prevented from

concentrating their fire. Each group of batteries is under the control of fire commanders, the highest executive rank of artillery command. In modern warfare it is essential to have a strong army to back up the navy in time of difficulty, as was seen in the late Russo-Japanese War. Accordingly, a strong coastguard corps should be supplied to prevent landing at any weak points along the coast.

During the Great War, the greatest attack on C. D. was that at the entrance of the Dardanelles (*q.v.*) in 1915, when the Allied fleets of Great Britain and France attacked the Turkish fortresses. The land batteries were armed with 9- and 10-inch guns on each side of the entrance and 9-, 10-, 11- and 14-inch guns and mortars on each bank at the Narrows. The attack was carried on intermittently for about a month, but the fleets lost so heavily that it was decided to await the land attack. The combined attacks by land and sea failed to reduce the Turkish defences and the Allied forces withdrew from the Gallipoli Peninsula (*q.v.*). It was expected in this war that the extensive use of aircraft and submarines would change the character of coast defences, but it was found that the counter-measures neutralised any forms of attack from these new machines of war. Aircraft is particularly vulnerable to the coast defence artillery, which can, from concealed positions, also attack ships at a greater distance than formerly, and with better control of fire. On the other hand, shore batteries have to be better concealed and protected in case of an aerial bomb attack.

At the outbreak of the Civil War in the U.S.A. (1861) the smooth-bore guns in C. Ds. were being replaced by rifled guns. Most of the C. Ds. were tested, but the most notable feat in attack was that on the Lower Mississippi, when an expedition was organised to capture New Orleans. The fleet consisted of seventeen gun-boats and nineteen mortar-boats with 13-inch mortars. Fort Jackson was bombarded with mortars for six days, the fleet then safely passing the forts. This movement so demoralised the garrisons of the forts that they surrendered. Early in the war armoured vessels were brought into use: they had either armoured turrets or armoured citadels; the former were called monitors, and were the principal sea-going armoured vessel in the Union Navy. Another notable feat was the defence of Fort Sumter, in Charleston Harbour, S. Carolina. The fort had thirty guns, and was protected by a floating obstruction. In April 1863 it was attacked by a

fleet of monitors, which it decisively defeated. Another form of C. D. used at this time was that of a raft anchored to the bottom of a river and fastened to the shore. The object was to obstruct the progress of the attacking fleet and bring it to a standstill under well-directed shore fire. The current, however, very often swept the rafts away. During the Spanish-American War the C. Ds. were not attacked. See articles on AMMUNITION, ARMY, ARTILLERY, NAVY, ORDONANCE, SUBMARINE MINES, and TORPEDO.

Coast Erosion, see EROSION.

Coastguard. The C. service was placed under the direction of the Admiralty in 1856, its purpose being the protection of the shores of the United Kingdom. The coast is divided into six districts: Scottish, Eastern, Southern, Western, S. of Ireland, and N. of Ireland. The service is under the direct control of the Admiral-Superintendent of Naval Reserves. Each district is divided into forty-four divisions, which in turn are divided into stations, over each of which is an officer in charge. The total number of men in the service, including officers in charge of stations, petty officers, and seamen, is about 5000. The Cs. are generally men who have seen active service. Each district has a ship in command of a captain. The duty of the Cs. is to patrol the coast day and night between the stations, to signal to vessels out at sea in distress, to be ready for life-saving in time of shipwreck, etc., and they also have duties in connection with the customs. In 1922 the British C. service was reorganised and the Board of Customs and Excise and the Board of Trade now control the service. In the U.S.A. a C. service was created by an act of Congress in 1915, absorbing the previous duties of the revenue cutter and the life-saving services.

Coasting Trade, the shipping trade carried between ports of the same country. In Great Britain C. T. includes, by law, all trade by sea 'from any one part of the United Kingdom to any other part thereof.' Formerly such trade was limited within the United Kingdom to British vessels, but in 1854 an Act was passed extending the privileges of coastwise trade to foreign ships. There are special rates of harbour, pier, and dock tolls, and pilotage, tonnage, duties, etc., allowed to coasting steamers. Ships while they are engaged in C. T. may not deal with foreign ports; but certain provisions are made for steamers, from a foreign port, engaged in trade with more than one port in the United Kingdom, and for steamers,

bound for a foreign port, that must call for cargo or passengers at more than one port in the United Kingdom. Great Britain is the only country that has opened her coastwise trade to all the world, but, nevertheless, the share of foreign nations in the trade is only reckoned at about 10 per cent. The coastwise trade of Great Britain in general amounts in total tonnage to a little more than half the shipping entering the ports of the United Kingdom.

Before the War the tonnage of ships departing from British ports on the C. T. amounted to 65 million. The post-war trade has approached to within 15 million of that figure. In the U.S.A. a considerable domestic trade is carried on by water. About 230 million tons of cargo are shipped annually from one port to another on the Atlantic and Pacific coasts and in the Gulf of Mexico. A C. T. also flourishes on the Great Lakes and commerce is conducted by water to the extent of 120 million tons of cargo annually. On the Atlantic coast the centre of trade is the port of New York and about 2 million tons of cargo are shipped annually from there along the coast to the ports on the New England coast. The trade from New York is mostly in wool, cotton, hides and metals, and the return trade from New England to New York is of equal volume. In Canada the British ships employed on the C. T. both between seaports and on the Great Lakes have a total tonnage of 40 million for steam and motor vessels, and 3 million for sailing vessels.

Coast Protection, the result aimed at by the various devices which are adopted for the protection of the land from erosion, damage by waves, etc. The main object in the reclamation of land is the increase of cultivable ground; it is principally in connection with such reclaimed land that protective works are necessary, though in many cases they are adopted rather to prevent the encroachment of the sea than to retain land already won. There are two principal kinds of protective works, sea-walls or banks, and groynes. There are three main kinds of walls, those with very sloping batter, vertical, or stepped batter. The best form appears to be a wall with an almost vertical face, or alternatively slightly stepped. The vertical face resists the action of the waves most, and is thus opposed to more force, but it also breaks the recoil; a wall with a face sloping inward has not so much resistance to meet at the first onslaught of the waves, but by its form it accentuates the recoil; a stepped wall

breaks the force of both the waves and the recoil. In the case of the two former kinds of wall, they are particularly liable to be undermined by the action of the waves, and should be protected at the foot by an 'apron.' If the foreshore consists of hard rock this is not so necessary, as the shore itself fulfils the function. Generally speaking, however, sea-walls are not satisfactory, regarded as the sole means of protection for the coast, and must generally be supplemented with groynes. They are very costly, and although they may seem at first to resist the erosive action of the sea, they, in reality, increase it. The other form of C. P., that afforded by groynes, is on a different principle. Groynes promote the natural accretion of detritus or eroded material on a beach by the construction of artificial shelter. The littoral drift of sand down a beach may be intercepted by means of groynes projecting from the beach line, and so accretion of sand may take the place or erosion. This is, of course, the ideal result of groynes, but there are several difficulties and disadvantages to be overcome. The building of groynes has in fact been a matter of trial and error. Erosion produces a littoral drift, and much of the drifted material is of necessity carried out and deposited in deep water. If high groynes are used, the two sides of the groyne will not receive the detritus equally, and one side will be denuded; this difficulty is found at Dungeness, Cromer, and Hastings, for example. The general effect of groynes is to render the adjacent portion, not so protected, more liable to the eroding influence of the waves. The distance to which groynes can be carried out to sea determines their efficacy in collecting drift: they should always reach low-water mark. The beach of any shore, which is composed of movable material, should gradually slope up to high-water mark in the form of an ellipse; the sea will then not do much damage, but roll in and out without erosion. This result is attained by raising the groynes slightly above the beach and promoting the accumulation of drift so leeward, as the scour of the waves is lessened and the passage of the detritus over the obstacle facilitated. As the drift accumulates, the groynes should be gradually raised, if necessary, and extended. The direction of the wind controls the travel of the drift, as the latter veers with the wind. In England there are examples of groynes of every design, laid out at every sort of angle. They used to be laid out at right angles, but no rule can be applied to a varying coastline, for the groyne

should be designed to meet squarely the waves driven by the prevailing winds. The proof of good design in groyneage is that the accumulation either side of the groyne should be equal. Where a coast is fringed with sand dunes, the beach should be protected from erosion by a regular series of groynes; the dunes or the promenade then receive sufficient protection by a simple sloping wall, with a maximum inclination of two to one. Bridlington beach is protected by groynes, with very good results, as are the sandbanks at Poole Harbour. Among other places at which groynes have been instrumental in improving the condition of the beach may be mentioned Sheringham, Weymouth, Cromer, Eastbourne, Dymchurch, Deal, etc. A more detailed account of the groynes at Bridlington will serve to show the results in this particular case, and the general principles acted upon. The Bridlington beach, which rests upon boulder clay, was rapidly being lessened as the result of increased erosion due to the erection of sea-walls. Groynes consisting of piles with dimensions of 14 ft. by 9 in. by 9 in., made of pitch-pine, and 11 in. by 4 in. planks, were erected along the seashore. To obviate the denudation of the sand to leeward, the planking was at no time raised more than two strikes above sea-level, but fresh planks were added as necessary. The prevailing gales in the winter are S.E., and hence the groynes were slanted 10° S. of E. from the perpendicular. The cost of this operation was between 12s. 3d. and 18s. per lineal foot, and very good results were obtained. In Poole Harbour the groynes were built at varying angles, and there is no doubt that if it had not been for these preventive measures the harbour would have been silted up. The timber groynes which were built on the beach between Lancing and Shoreham had the effect, in the course of a few years, of causing the high-water mark to recede 85 ft. Low wooden groyneage has been used for the preservation of Romney Marsh. It was inexpensive and has proved successful. At Blankenberge, groynes were constructed which had an excellent effect in checking the eroding action of the R. Scheldt. They were 820 ft. long, and at intervals of 680 ft., they extended to below low-water mark, and were at right angles to the beach. In order to facilitate the even distribution of drift over the whole area to be protected, and to lessen the erosion from wave action, the groynes were raised only slightly above the beach. They were built with wide tops and had a foundation

of fascines and concrete, faced with brickwork or stone pitching. The result was to form practically an ideal sloping beach (*cf. supra*), on which wave action was reduced to a minimum. This type of groyne is, however, too expensive for general use. The extension of groynes below low-water mark is advocated by some engineers, and as submerged wood, even when treated to a creosoting process, is always liable to be attacked by such enemies as the teredo, concrete and other similar materials have been suggested for groynes. Experience alone will prove which is the best material. For C.P. in Holland sea-walls or dykes are used in addition to groynes, and for the protection of submerged banks 'fascine mattresses.' The latter are made of willow brushwood and are ballasted with stone. The Zuider Zee is now being enclosed and partly reclaimed. The principal method of construction for the enclosing dyke is an exterior dam of boulder clay, and behind this sand covered with a layer of clay, having a facing of stone both sides. Another important feature of C.P. is 'dune fixation.' The importance of this is recognised in the U.S.A., and grass is generally planted. In England marram grass has been used successfully, notably on the Norfolk coast, and on shingle beaches for protection against on-shore gales tamarisk is recommended. See *Proceedings of Institute of Civil Engineers*, cxviii. 165; *Transactions Inst. Civ. Eng. of Ireland*, vol. xxviii., 1900, and vol. xxix., 1903; *British Parliamentary Report*, etc.

Coast Ranges, a system of mountains in N. America extending along British Columbia, Washington, Oregon, and California, and almost parallel to the Pacific coast. These mountains are very irregular, sometimes attaining to a great height and then remaining at a comparatively low one for a considerable distance. The character of the scenery is also very varied, the mountains in some places being almost bare, and in other places being densely covered with thick forests of trees. In British Columbia the C. R., called also Cascade Range, average a height of 6000-7000 ft., although some peaks attain to a height of 9000 ft. Many of the trees on the slopes of the C. R. grow to an enormous height, of which the Douglas spruce is an excellent example, being 250-300 ft. high. In Washington the mountains are called the Olympic group and are very rugged, the highest peak, Olympic, being 8150 ft. high. The mountain range diminishes in size in Oregon, averaging between 4000 and 5000 ft. in most

parts. In California the C. R. present an insignificant appearance for about 400 m. Further on, nearer San Francisco, they attain to a great height in some peaks, whilst not far from Los Angeles the San Bernardino Peak rises 11,100 ft. high.

Coatbridge, a tn. of great importance which became a municipal burgh in 1885; it is situated in the co. of Lanarkshire in Scotland, lies 9 m. E. of Glasgow, and is one of the eleven villages in the parish of Old Monkland. There are several large collieries and an important iron and steel industry. C. lies in the centre of a mineral district, and possesses in addition to several churches a technical school, various municipal buildings, and two fine parks. Pop. 43,910.

Coatepec, a tn. in the Atlantic state Vera Cruz, Mexico, 56 m. distant from the capital. Pop. 8820.

Coates, Albert, Eng. musical conductor, b. April 23, 1882, in St. Petersburg (Leningrad), of wholly Eng. parentage. Educated at Buckhurst Hill School, and studied science at Liverpool under Sir Oliver Lodge. Returned to Russia. Entered Leipzig Conservatoire; joined Nickisch's conducting class. Conducted Imperial Opera at St. Petersburg five years. Came to England in 1919, conductor to Sir Thos. Beecham at Covent Garden. Conductor of London Symphony Orchestra and Royal Philharmonic Socy. Director, Philharmonic Orchestra, Rochester, N.Y., 1923 to 1925 when he returned to England.

Coates, John, tenor singer; made his first appearance in 1894 at the Savoy Theatre in London, and eventually, in 1901, took part in the Covent Garden Opera. Since then he has sung in different parts of Germany and the United States, and has taken part in several musical festivals.

Coates, Joseph Gordon, New Zealand statesman, was b. at Matakoho in 1878, son of Edward Coates, farmer. Educ. privately. Became M.P. for Kaipara, 1911. Served with infantry in France, Jan. 1917 till Feb. 1919. Attained rank of major and received Military Cross. On return home, took office under premier Massey; filled offices of Postmaster-General and Minister of Public Works. Became Prime Minister on death of Massey, 1925. His 'Reform' Party was defeated at the General Election of 1928, and he was succeeded by Sir Joseph Ward, leader of the new 'United' Party.

Coatesville, a bor. in Chester co., Pennsylvania, U.S.A., 37 m. W. of Philadelphia. It is situated on Brandywine Creek. Its chief manu-

factures are paper, steel rails, and boilers. Pop. 14,582.

Coat of Arms, *see* ARMS, COATS OF, and HERALDRY.

Coati, or **Coati-mundi**, a genus of Procyonidae, related to the racoon. They are indigenous to N. and S. America, are gregarious and arboreal; the nose forms a mobile proboscis useful in digging up its food.

Coats, James, the founder of a cotton-thread business in Paisley, which is now known as J. and P. Coats, Ltd.

Coats, Sir Peter (1808-90), and **Thomas** (1809-83), sons of James C., *b.* at Paisley, both Scottish thread manufacturers. Both gave generously to many philanthropic schemes, and Paisley owes much to them.

Coatzacoalcas, (1) a river in Mexico which has its rise in the Sierra Madre, Tehuantepec isthmus, and ultimately falls into Campeachy Bay. In length it is 150 m., and is navigable for about 30 m. from its mouth; (2) or Puerto Mexico, a port in Vera Cruz, Mexico, on the Gulf of Mexico. The E. terminus of the Tehuantepec Railway across the isthmus, standing at the mouth of the wide and deep C. riv. The climate is hot. Two converging jetties about 4333 ft. long extend from the mouth of the riv. to the sea to prevent the formation of a bar. Its wharves are equipped with electric cranes. The beach is the main street. Pop. 20,000.

Cob, *see* HORSE.

Cobalt, a tn. in Ontario, Canada, 330 m. N. of Toronto, named from the abundant supply of cobalt ore. Nearly 300,000 ounces of silver were produced in 1903-18, but much less later. The first valuable discovery of ore was made in 1903. Pop. 4449.

Cobalt and Cobalt Ores. Cobalt (symbol Co, atomic weight 5.90) is a metal of the iron group of elements. It is a hard white metal resembling nickel, produced by the reduction of its oxide or chloride by hydrogen or carbon. Like iron and nickel, it is magnetic, although to a lesser degree. The element is remarkable for the brilliant colours of some of its compounds. Thus a blue colour is imparted to potash glass by the addition of a little cobalt salt, when cobalt silicate is formed. Cobalt is a relatively rare metal, but plenty of it is found mined with the silver ores in Ontario round about Cobalt. The chief ores are cobalt-glance (CoAsS), the arsenide, and sulphide; smaltine (Co As₂), the arsenide; and cobalt-bloom, which is an arsenate of the metal. These are converted into oxide by roasting and reduced with carbon. The metal itself is becoming increas-

ingly important as a constituent of various alloys, while its compounds are used in the manufacture of paints (both as pigments and as driers). Cobalt chloride gives a pink solution in water, which forms a favourite invisible ink; writing done with this liquid is invisible—more or less—when dry, but goes brilliantly blue on warming.

Cobán, the cap. of Alta Verapaz, Guatemala, Central America. It is situated in the finest coffee district of the republic. Chalk is found there and made into crayons. Pop. 4640.

Cobar, a municipality and post tn. in co. Robinson, 350 m. N.W. of Sydney, New South Wales. The district is the centre of copper, gold, and silver mining: wool-growing is also an industry. Pop. 4000.

Cobb, Irvin S., *b.* Paducah, Kentucky, U.S.A., Jan. 23, 1876, and graduated from University of Georgia. Held various positions as reporter and on editorial desks in Paducah, Louisville, and New York City, and then became a regular staff contributor to various American magazines, specialising in the short story, of which he is considered one of the best modern exponents, particularly those in a humorous vein. Many of his stories deal with his native Kentucky, of which he has made himself a sort of prose laureate. Among his best known books are *Old Judge Priest*, 1915, and *Red Likker*, 1929.

Cobbe, Frances Power (1822-1904), an Eng. writer, and a well-known investigator of social questions. She was a staunch supporter of women's suffrage, and the founder of the National Anti-Vivisection Society (address, 92 Victoria Street, London, S.W.). Pub. *Essay on Intuitive Morals*, *Duties of Women*, *The Scientific Spirit of the Age*.

Cobbett, William (1763-1835), author and politician, was of lowly origin. As a lad he tilled the soil, but at the age of twenty became a solicitor's clerk. Finding the life uncongenial, he enlisted and went with the 54th Regiment to New Brunswick. He was soon promoted to the rank of sergeant-major, and, entrusted with the keeping of the regimental accounts, he discovered peculations on the part of some officers. He secured his discharge, and gave information to the War Office. A court-martial was summoned, but C., learning that he was to be confronted with perjured witnesses, fled the country. After a brief sojourn in France, he went to the U.S.A., where he found full play for his talents as a pamphleteer. He became a noted character, and his fame spread to England, where many

of his writings were reprinted. His hatred of shams and dishonesty eventually made him the defendant in a libel action, which being decided against him, ruined him. He returned to England in 1800, and was taken up by the Tory leaders, Wyndham and Dr. Lawrence providing him with funds to start the *Political Register*, which was published weekly until his death. His industry, as he was never tired of pointing out, was prodigious, and his output enormous. Besides writing the greater part of the *Register*, he was the author of many books, mostly of a utilitarian nature, such as *Cottage Economy* and *The English Gardener*. He also originated and edited the *Parliamentary History*, the *Parliamentary Debates*, and the *State Trials*. His most characteristic book is *Advice to Young Men*; his best, *Rural Rides*. His great merit as an author was his clear, vigorous style. An active politician, he was always on the side of the oppressed, for whose cause he was always willing to suffer. He was prosecuted by the Gov. in 1810, and imprisoned in Newgate for two years; and in 1817, on the suspension of the Habeas Corpus Act, he went to America to escape a second period of incarceration. It was his perpetual endeavour to stir up the poor to demand better conditions and to secure a greater control of public affairs. He was, indeed, one of the most strenuous advocates of parliamentary reform, and one of the most valuable, the *Register* and his books reaching a vast public. Appropriately enough, he was returned as a member of the first Reform Parliament, but he was then too old to achieve any marked success in a new sphere of activity. He had great, even overweening self-confidence, and even where he failed, he showed the path to others, and many of the reforms that have been effected since his day were due to his teachings. The most complete biography is by Lewis Melville, 1912. See also *Life* by G. D. H. Cole, 1924.

Cobden, Richard (1804-65), statesman, was the fourth of eleven children of a small Sussex farmer, who fell on evil days and had to part with his farm soon after Waterloo. Richard was taken charge of by relatives, who sent him to a rough-and-ready school in Yorkshire. Later he became a clerk, and then a commercial traveller, until in 1828 he set up in business on his own account as a calico-merchant in Manchester. The business prospered, and eventually the merchant became a manufacturer, and found time to remedy some of the defects of his education. Economics was his

favourite study, and he became an active advocate of free trade. He gave expression to his views in pamphlets issued respectively in 1835 and 1836, *England, Ireland, and America*, and *Russia*. Being a prosperous man by this time he offered himself as a parliamentary candidate for Stockport at the first general election after Queen Victoria's accession; but it was not until three years later that this constituency sent him to Westminster. He was already a prominent member of the Anti-Corn Law League, which had been founded at Manchester in the autumn of 1838, and was supported by Charles Villiers and John Bright. To obtain the repeal of the laws imposing a duty on the importation of corn was the matter nearest his heart, and it was on this subject that, on Aug. 25, 1841, he made his maiden speech in the House of Commons. How strenuously he devoted himself to his self-imposed task is a matter of common knowledge, and the arguments he adduced will be found set forth in his *Speeches on Free Trade* (collected in 1903). For years he waged warfare against the protectionists, but at last circumstances aided him. Peel began to be convinced of the necessity of bringing the question of the repeal of the corn laws within the range of practical politics, and during the Irish famine in Oct. 1846 he declared that the only remedy was 'the total and absolute repeal for ever of all duties on all articles of subsistence.' The Cabinet did not agree with this decision, and on Dec. 9 Peel resigned. Lord John Russell, who was for total repeal of the duties, was sent for, and invited C. to take office in his administration, but C. declined, believing that as a private member he could more effectually aid the cause he had at heart. Dissensions between Grey and Palmerston prevented Lord John from forming a ministry, and Peel returned on Dec. 20. In the following month he introduced a repeal Bill, which, after much bitter debate in the Commons, received the royal assent on June 26. C.'s object was achieved, and he was hailed as the saviour of the poor. His exertions had, however, left him no time for the conduct of his own affairs, and his business was on the verge of bankruptcy; but ruin was averted, for a grateful nation subscribed £80,000 as a testimonial to him. In 1860 another subscription was started and realised £40,000. Nothing that C. did after the repeal of the corn laws was commensurate in value to his share in securing that measure, but after his principal object was effected he strove in other directions

to further free trade. His next most important achievement was the negotiation of a commercial treaty between France and England, to bring about which he went to Paris in Oct. 1859. He went as a private person, but when he had silenced the objections of the French protectionists, he was given official powers, and on Jan. 23, 1860, he and Lord Cowley were the Eng. signatories to the treaty. 'Rare is the privilege of any man,' Gladstone said in the House of Commons, 'who, having fourteen years ago rendered to his country one signal and splendid service, now again within the same brief span of life, decorated neither by rank nor title, bearing no mark to distinguish him from the people whom he serves, has been permitted to perform a great and memorable service to his country.' This public tribute was well deserved, for there is not a more sincere or a less self-seeking man to be found in the annals of Eng. history. C. died on April 2, 1865. There is a biography by Lord Morley (1881).

Cobden Club, The, founded in 1866 to defend and spread the economic and political principles with which Richard Cobden's name is associated. The head office is at 69 Victoria St., Westminster, London, S.W.

Cobet, Carel Gabriel (1813-89), a Dutch classical scholar, b. at Paris. In 1846 was made professor at Leyden, where he remained until his death. His chief works are: *Noxæ Lectiones*, 1858; *Variae Lectiones*, 1873; *Miscellanea Critica*, 1876; *Observationes Criticæ*, 1877; *Collectanea Critica*, 1878; *Brieven aan Geel*, 1892.

Cobham, or Church Cobham, a vil. in Surrey, England, situated on R. Mole, 6 m. W. of Epsom. Pop. 5103.

Cobham, Lord, see **OLDCASTLE, SIR JOHN**.

Cobham, Sir Alan John, British aviator, b. 1894; son of Frederick C. Educ. at Wilson Grammar Sch. A farm-pupil in 1912; began a commercial career in City of London, 1913. Served in Great War, Aug. 1914 till Jan. 1919—three years in France; commissioned 1917 in the Royal Flying Corps, afterwards Royal Air Force. In 1920, undertook aerial photography for the Aircraft Manufacturing Co. Joined the De Havilland Aircraft Co., 1921. Same year began series of long flights; flew 5000 m. round Europe. Another tour, 8000 m., round Europe and N. Africa, in 1922; in June flew from Belgrade to London in a day. Flew 12000 m. over Europe, N. Africa, and Palestine, in 1923; also London to Brussels with 6 h.p. engine. In 1924 flew from London to Rangoon and back. In 1925-26 flew London to

Cape Town and back; in 1926 England to Australia and back; won Britannia Trophy 1923, 1925, and 1926; and in last-named year was made K.B.E. He was commander-pilot of the flying-boat expedition that flew completely round Africa, Nov. 1927 to May 1928.

Cobitis, a genus of carp-like fishes popularly known as loaches, which are natives of Europe and the E. Indies. The spined loach is a European species found in Britain which makes a peculiar breathing-sound.

Coble, a low, flat-bottomed boat with a square stern, of one ton burden, 20 ft. in length, and 5 ft. in breadth, rowed with three pairs of oars, and fitted with a lug-sail. It is used chiefly in the cod and turbot fishery. The name is also applied to a smaller boat in use by the salmon fishers.

Coblentz, see **KOBLENZ**.

Cob-nut, Filbert, and Hazel-nut are all names of the fruits of various species of *Corylus*. They are edible and are largely cultivated as dessert-fruits. The nut contains a single seed of an oily nature. *C. avellana* and *C. tubulosa* produce some of the finest specimens.

Cobourg, the cap. tn. of North-umberland co., Ontario, Canada, 77 m. N.E. of Toronto, and situated on the N. shore of Lake Ontario. It possesses a good harbour, and has woollen mills, foundries, car and carpet manufactures. Pop. 5327.

Cobra, the Portuguese name for several poisonous snakes in the colubrine genus *Naja* common to S. Asia and Africa. The most familiar of these is *N. tripudians*, or cobra da capello, the hooded snake of India. The colours vary from pale brown to dark grey in some specimens, while others are dark brown and bear spectacle-like black and white markings on the neck, a portion of the body which becomes a hood-like expansion when the creature is roused. In habit the C. is usually nocturnal, and unless attacked is not, as a rule, dangerous; its diet consists of small vertebrates, e.g. rats and frogs; its length may be from 4½ to 6 ft. Although it is terrestrial and conceals itself among stones during the day, it can both swim and climb gracefully and well. *N. haje*, the Spy-Slange of the Boers, is a C. well known in Africa.

Cobra, a British torpedo-boat destroyer, which during a voyage to Portsmouth in 1901 was wrecked in a gale off the Lincolnshire coast, almost immediately going to pieces, her shell not being strong enough to bear the weight of her machinery and armament.

Coburg (Lat. *Melocapus*), German

tn., formerly cap. of the duchy of Coburg, and residence of the Duke of Saxe-Coburg-Gotha alternately with Gotha; situated on the Itz (tributary of R. Main), about 26 m. from Bamberg, 48 m. from Gotha. The Marktplatz contains Theed's statue of Albert the Prince Consort, the old Rathaus, Gov. buildings, and the large arsenal with its fine ducal library. In the Schlossplatz are the ducal palace of Ehrenburg, containing fine paintings and a state banquet-hall, the theatre, various churches, and Schwanthaler's statue of Duke Ernest I. On the citadel above the town is the old castle and fortress of the dukes of Coburg, recently restored. It was one of the most celebrated structures of the Middle Ages, said to date from the early tenth century. It is now a museum of art and antiquities. Luther took refuge there, 1530; it defied Wallenstein's attacks, 1632. C. manufactures basket-work, thermos flasks and porcelain, has breweries and a vegetable market. Pop. 24,700.

Coca, or *Erythroxylon Coca*, a shrub growing in Peru from the dried leaves of which a narcotic and stimulant is prepared. The alkaloid known as cocaine is a product of this shrub.

Cocaine ($C_{17}H_{21}O_4N$), the chief alkaloid found in the leaves of the coca tree. *Erythroxylon Coca* is a shrub of the order Erythroxylaceæ; it attains a height of 6-8 ft., and is met with in many tropical countries, particularly in S. America, where the natives have long been in the habit of chewing the leaves for the stimulating effects produced. When the practice has been long indulged in, the appetite for ordinary food fails, the subject tends to rely on the drug, and eventually collapse occurs. As an occasional tonic, however, coca leaves have considerable value, and are said to enable the Indians to perform remarkable feats of endurance. The properties of the plant were demonstrated in Europe by Christison, and many preparations of value as stimulants have been made with coca leaves extract as an important constituent. Many alkaloids have been found in the leaves, the most important being C. One extract is first made by steeping the coca leaves in hot water. The solution is then treated with lead acetate in order to precipitate tannin, etc., and the lead in the filtrate is precipitated by the addition of sodium sulphate. The solution is then rendered alkaline with soda and the C. extracted with ether and purified by recrystallisation from alcohol. C. forms colourless prisms melting at $98^{\circ}C$. It is soluble with difficulty in water, but forms salts readily. The

preparation usually employed in medicine is the hydrochloride ($C_{17}H_{21}O_4N, HCl$), which is readily formed by neutralising the alkaline extract with hydrochloric acid and evaporating the solution to crystallisation. The most important property of C. is its capacity for removing all sensation of pain on local application, and it is used for this purpose in dentistry and other minor surgical operations. Taken by the mouth, it acts first as a stimulant and then as a narcotic. It resembles caffeine in its effect on the nerve-centres, and atropine in its effect on the respiratory and circulatory organs. The dose for internal use is from $\frac{1}{4}$ to 2 grains. For injection to produce local anesthesia a 2-8 per cent. solution of the hydrochloride is employed. C. has been found of great use in eye operations. When applied to the conjunctiva, it dilates the pupil and abolishes pain. For some time after the application there is paralysis of the function of accommodation, so that the patient does not see clearly. For producing local anesthesia various methods are employed, according to the nature and seat of the operation and the depth of anesthesia desired. Simple external application to the skin has little effect, but the effect on mucous membrane is to produce a tingling followed by numbness with partial or total loss of sensibility to pain, according to the idiosyncrasy of the subject. There is usually a blanching of the surface, owing probably to constriction of the blood-vessels. Short operations in the nasal passages may be rendered painless by the application of C., also such operations as the removal of tonsils. A deep local anesthesia can be produced in a superficial part by hypodermic injection. This is not only used for dental and other small operations, but also on occasions when general anesthesia is dangerous or undesirable. Its use is avoided when possible, as in certain persons it is liable to cause depression of the heart, with possibly fatal results. Another disadvantage of its use is the impossibility of sterilising C. by heat as it decomposes. There is therefore some danger of septic germs being introduced, although a fairly strong solution is not a favourable medium for the growth of micro-organisms. It is true that the distressing symptoms consequent upon the use of ether or chloroform are avoided, but C. is not free from painful after-effects, and sometimes the sensibility of the part is increased when the influence of the drug has passed away. C. is sometimes used to produce spinal analgesia, though it has been largely superseded

by stovaine, eucaïne, and novocaine. The method employed is the injection of the solution into the sac containing the spinal cord in the lumbar region. The effect produced is insensibility to pain in the lower part of the body. A danger always present in the administration of C. is the possibility of setting up the drug habit. Its employment, for instance, to modify recurrent pains tends to produce a craving for C. which is much more insidiously developed and more difficult to eradicate than the craving for alcohol. The patient simulates pain to procure the drug, even to the point of self-deception. The firm establishment of the habit leads to moral degeneration, sleeplessness, emaciation, and death. The suppression of the improper use of narcotics comes within the activities of the League of Nations, before which body much evidence of such usage was given in Geneva in January 1929. The British delegate, Sir Malcolm Delevingne, presented a report on the activities of a factory in Holland whose illicit operations amounted to 3,350 oz. of cocaine, much of which was consigned to China. Attention was also drawn to the amount of information contained in the Italian report on the methods employed in the underworld for the distribution of cocaine and on the close relations existing between the cocaine traffic and the white slave traffic. The report also dealt with the ingenuity in concealing their trade of those trafficking in this drug and to the part sometimes played by pharmaceutical chemists in selling it at greatly enhanced prices. The traffic still continues active and at the end of 1930 the Secret Service Agents of the U.S.A. Gov. seized in New York Harbour twelve packing cases containing morphine, cocaine, and heroin hidden in furs which were consigned from Constantinople, and at 'bootlegging' rates were valued at \$200,000.

Cocanáda, a seaport in the Godavari dist., Madras, India, 86 m. S.W. of Vizagapatam; it has exports of cotton, rice, sugar, and cigars. Pop. 53,000.

Coca Wine (*Vinum coca*), a wine used for stimulating effects, and consisting of one part of coca and eight parts of sherry. It is strongly medicated, and must contain half a grain of alkaloid in the ounce, otherwise it is necessary to have a licence before it can be sold. A weaker preparation, containing one in twenty or thirty of a sweet red wine, is sometimes sold by wine merchants.

Cocceius, Johannes, originally Koch or Kohen (1603-69), a Dutch

Hebraist and theologian. He advanced the 'federal,' or 'covenant,' system of theology, an 'important attempt . . . to do justice to the historical development of revelation.' His disciples were known by the name of Cocceians. His chief works were: *Summa Doctrinae de Fœdere et Testamento Dei*, 1648; *Lexicon et Commentarius Sermonis Hebraici et Chaldaici Veteris Testamenti*, 1669.

Cocceji, Heinrich von (1644-1719), a Ger. jurist whose *Juris Publici Prudentia* for a long time remained the text-book of German civil law.

Cocceji, Samuel (1679-1755), the son of Heinrich von C. From professor in Frankfurt-on-Oder, he passed through the various offices, until in 1747 he became the Chancellor of Frederick the Great. He wrote *Novum Systema Jurisprudentiæ*, 1744-52.

Cocco, Coco, Scratch-coco, Tao, and Eddoes, are all names given to an E. Indian species of Araceæ. The C. is decclinous, and is often used as a foliage-plant; the rhizomes contain a poisonous property, but lose this when they are boiled, and form a nutritious food for the natives.

Coccoliths, or Coccolites, are small, saucer-like discs found in the ooze of the Atlantic, sometimes singly and sometimes aggregated together. It is considered probable that they are the remains of unicellular marine algae.

Coccoloba, a genus of Polygonaceæ, consists of tropical plants of very handsome appearance, some of which produce edible fruits. *C. urifera*, the seaside grape, is a tree, the leaves, wood, and bark of which are powerfully astringent owing to the presence of tannin, and a decoction called Jamaica kino is evaporated from them. The wood is valued for cabinet-making and contains a colouring matter used as a dye; the fruit is edible and is sold in W. Indian markets, but is little valued.

Coccosteus, a curious genus of fossil fishes characterised by having a scaleless tail, while the head and body were covered with large bony tuberculated plates. Some of the species were very large, and good specimens of *C. decipiens* have been found in Scotland.

Cocculus, an unimportant genus of Menispermaceæ, the fruits of which contain a poisonous active principle known as picrotoxine, about which great care is exercised when it is used medicinally.

Coccus, a genus of hemipterous-homopterous insects typical of the family Coccidae, of which the species are called familiarly scale-insects or mealy-bugs. The females are wingless, and of a very degenerate type; when adult they fix themselves to a plant

by means of their proboscis, and remain there until they produce their young and die. The males, however, are devoid of mouth-parts, and consequently do not live long after fulfilling their one duty, that of fertilising the females. They are unlike their mates in being beautiful and well-developed creatures with anal cerci and a single pair of wings. Some of the coccids are destructive to vegetable life, while others are of value to man. Such are *C. cacti*, which yields cochineal, and *C.* (or *Gossyparia*) *mannifera*, which exudes the honey-dew supposed to be the manna of the Old Testament.

Coccyx, the terminal portion at the lower end of the spinal column, consisting of four or five vertebrae.

Cocentaina, a tn. in the prov. of Alicante, Spain, 5 m. from Alcoy. It has manufactures of silk, linen, and paper.

Cochabamba, the second city of importance in Bolivia, has a pop. of 34,281 at an altitude of 8435 ft. The prov. (pop about 500,000) of which it is the cap. is sometimes called the granary of the republic. There are large herds of cattle and rich forests. The city is the distributing centre for E. Bolivia, and there is a rich mining region. C. has a cathedral, University, high schools, banks, air lines to Sucre, etc., and a railway to Oruro.

Cochet, Henri, Fr. lawn-tennis player; b. 1901, at Lyons. Learned game there on covered courts. Regional champion, and military champion, of France 1921; many other continental victories. In 1927 won men's singles at Wimbledon; in 1928 U.S.A. singles, and doubles at Wimbledon.

Cochin (Tamil *kaci*, harbour): (1) A state of British India within the presidency of Madras, of area over 1300 sq. m. Mostly a low tract of land between the W. Ghats and the sea. Its chief products are cotton, rice, cardamoms, ginger, indigo, coconuts, and pepper. Teak abounds, and salt is manufactured on the coast. The capital is Ernakolam, but the rajah lives at Tripunthura. The chief commercial centre is Mattancheri. Numerous backwaters and coast lakes facilitate internal communication, and a metre-gauge line was constructed (1902) connecting Ernakolam and Shoranur. The population consists largely of Hindus, Christians, and Mohammedans. Many Jews reside in the suburbs, some of them of the black type. Till the ninth century A.D. C. was part of the Ancient Chera or Kerala kingdom. The Apostle Thomas is said to have gone there, but history is obscure till

the arrival of the Portuguese. Vasco da Gama reached the Malabar coast in 1498. In 1663 the Dutch drove out the Portuguese; 1776 Hyder Ali of Mysore became suzerain; 1791 Tippoo ceded C. to Britain. Pop. over 800,000. (2) Tn. on the Malabar coast, near the entrance to the great lagoon of Travancore, about 95 m. from Calicut. It has an arsenal, a harbour, and shipbuilding yards, and carries on much maritime trade. The first possession of the Portuguese in India, taken from them by the Dutch, 1663, and by the British, 1795. It was formally ceded to England, 1814. It is the see of a Catholic bishop and of two Syrian bishops. The people are chiefly Christians, Hindus, and Mohammedans. Christian and Jewish colonists have existed since the first century A.D., the Christians forming the sect of Nasarani Mappilas. Pop. 20,637.

Cochin China (Fr. or Lower), a Fr. possession in S.E. of Asia in the extreme S. of Fr. Indo-China. Also called Gia-Dinh, or Nam-ki (country of the south). Bounded by Cambodia and Annam on N., S.E. by S. China Sea, and W. by Gulf of Siam. A peninsula in the S., ending in Cape Camao, it separates the China Sea and Gulf of Siam. Off the coast are Condor Is. (Pulo Kondor) and Pulo Obi in the China Sea, and the Fu Kwok group in the Gulf of Siam. Its area is 26,476 sq. m. C. C. is mostly a broad, low-lying, alluvial plain, including the deltas of the Mekong and Dongnai Rs., together with the Saigon R. and the Great and Little Vaicos. The coast region is swampy, and cane-covered marshes stretch far inland. Two canals connect the Bassak arm of the Mekong with the Gulf of Siam. The climate is subject to monsoons and is unhealthy for Europeans. Towards the N. there is higher land, mountain summits rising to about 2000 ft. In the W. are the last outliers of the Elephant Mountains of Cambodia. Forests in the N.E. contain valuable woods for shipbuilding and cabinet-making. The gamboge-trec abounds. There are two railway lines, Saigon to Mytho and Saigon to the frontier of Annam; and a complete network of roads, but the rivs. and canals are still more important. C. C. is an agricultural country. Rice is the principal crop, being 2,000,000 tons a year. Next come areca nuts, betel nuts, cocoa-nuts, sugar-cane, maize, mulberry, cotton, pepper, palm oil, rubber, sweet potatoes, earth-nuts, coffee, oranges and bananas. Water-buffaloes are much used for labour, also zebras. Among other animals

found there are the elephant, rhinoceros, deer, wild boar, tiger, and many smaller animals. Peacocks, snipe, partridges, pheasants, and woodcocks also abound. Minerals are not very abundant, but phosphate of lime is found at Ha-tien, lignite and granite, and salt is produced on the coast from lagoons and pits at Sak-trang, Baclieu, and Baria. The majority of the population are Annamese. There are also Cambodians and Chinese, with a few Moïs, Malays, and Europeans. In religion over a million are Buddhists, and about 75,000 are Rom. Catholics. The Fr. have established very many schools, mostly conducted by native teachers. Trade is chiefly in the hands of the Chinese, the main centre being Saigon. Native industries produce a little jewellery, mats (at Saigon and Rash-Gia especially), pottery, and basket-work. Storms prevail in May and Aug., while in July, the 'brief dry season,' fever and dysentery are common. The seasons are very regular and harvests good. Irrigation and drainage are carried on energetically in the central and S.W. provs. The exports include rice, dried fish, pepper, hides, gamboge, areca nuts, copra, cotton, cardamoms, spices, live animals, dyes, isinglass, and silk. For administrative purposes there are four provs. The Governor of Cochin China is under the orders of the gov. of Indo-China and is assisted by a privy council. There is also an elected colonial council consisting of twenty-four French and native members. C. C. is represented in the Fr. Parliament by one deputy. Pop. (1928) 4,303,413, of whom 16,062 were French. Local affairs are entrusted to native officials. Other important places are Cholon, Bienhoa, Long-xuyen, Chau-doc, Bentre, and Tay-ninh. The Khmer kingdom (at its zenith from ninth to twelfth centuries A.D.) included much of modern C. C., the rest being under the empire of Champa (ended in fifteenth century). The Annamese took the E. region in the seventeenth century and in the eighteenth they occupied the W. also. Hence C. C. was formerly a name for the old kingdom of Annam, extending to the S. of Tongking. About 1861 C. C. came under Fr. rule; becoming a Fr. colony, 1867. In 1887 it united with Cambodia, Annam, and Tongking to form the Indo-Chinese Union. Pop. (1901) over 2,900,000.

Cochineal, a natural dye-stuff employed in dyeing scarlet, crimson, and orange, and in the preparation of the pigments lake and carmine. It consists of the bodies of the female insects of the *Coccus cacti* (family

Coccidæ, order Hemiptera), so called because the chief food of the species is a variety of cactus, particularly the Nopal, found in Mexico and Peru. It is now also cultivated in Algiers, Spain, etc. The insects are collected from the plants into bags, and killed either in an oven or by exposure to the sun or steam. Different kinds of treatment produce the various varieties of C., the best being known as silver, the next as black, and an inferior quality as granilla. The use of C. reached Europe from Mexico in the sixteenth century.

Cochleaus, Johann, properly **Dobneck** (1479-1552), a Rom. Catholic controversialist and writer, b. at Wendelstein. He sat on the Rom. Catholic side in the first commission at Augsburg, and at the Regensburg Colloquy in 1546. His chief works are: *De Matrimonio Regis Angliæ*, 1535; *Scopa in Araneas Ricardi Morusini Angli*, 1538 (both written strongly against the marriage of Henry VIII. of England with Anne Boleyn); *Historia Hussitarum*, 1549; and *De Actis et Scriptis Lutheri*, 1549. His Life has been written by Spahn (1898).

Cochlea, see **EAR**.

Cochlearia, a genus of cruciferous plants, growing wild in Europe and Asia Minor. *C. armoracia*, the horse-radish, grows in Britain, but is not in reality a native, the wild specimens being evidently escapes from gardens; the root is a well-known condiment. *C. officinalis*, the scurvy-grass, is a native of Britain found in muddy places near the sea-coast; the fresh plant is a stimulant and possesses antiscorbutic properties.

Cochrane, Sir Alexander Forrester Inglis (1758-1832), and Eng. admiral who took part in the actions off Martinique in the *Montague*, 1780. In 1795 he seized two large Fr. store ships out of a squadron of five. In Lord Keith's expedition to Egypt in 1801 he commanded the *Ajax*, and in 1806 he took a prominent part in the battle off San Domingo, being second in command under Duckworth. He was uncle of the celebrated Admiral Thomas (Lord) Cochrane, Earl of Dundonald, and father of Admiral Sir Thomas John Cochrane.

Cochrane, Robert, Earl of Mar (d. 1482), a Scottish architect, and a favourite of King James III. He is supposed by some to have been associated in the building of Parliament House at Stirling. After his accession to the earldom, probably about 1479, he was seized by the order of Lord Angus and other nobles, and hanged over Lauder Bridge.

Cochrane, Thomas, tenth Earl of

Dundonald (1775-1860), began his career in the Navy when about eighteen years old, and in 1801, when he held the post of commander of the *Speedy*, distinguished himself in the service. Some years later he was elected member for Westminster, and endeavoured in that capacity to reform the Admiralty. In 1809, however, he was not successful in his attempt to bring about the destruction of the Fr. fleet, and although the fault was not his, he had to bear the blame. In 1814 he suffered expulsion from the navy on a false charge of fraud, was expelled from Parliament, and was imprisoned. He escaped, and was re-elected for Westminster. He was, however, recaptured and had to serve one year's imprisonment. After this he did brilliant service for Chili and Brazil, and in 1827-28 was in the service of Greece. By the year 1832 he had managed to regain his position in the Eng. navy, being made an admiral. He also served as commander-in-chief in the N. American squadron, 1848.

Cochrane, Sir Thomas John (1789-1872), an Eng. admiral, son of Admiral Sir A. F. I. C. While commanding the *Surprise*, 1813, he captured the *Decatur*, an American privateer, afterwards assisting in the attacks on Washington and Baltimore.

Cock, Edward (1805-92), a British surgeon who was apprenticed at the age of sixteen to his uncle, Sir Astley Cooper, at St. Thomas' Hospital. On the establishment of Guy's Hospital, he was appointed as the demonstrator of anatomy. He was consulting surgeon there in 1871. He was probably the first who performed the operation of cesophagotomy. His chief work was *Practical Anatomy of the Head, Neck, and Chest*, 1835.

Cockade, the modern substitute for the badge worn in olden days on the dress or appointments of the servants of the house. Custom is the only authority for its use, and excepting casual references in the description of military accoutrements, no official recognition of the C. occurs. Probably the earliest Cs. known were those which were worn in Scotland for William of Orange at the time of the revolution. The white C. was that worn by the Jacobites, while a black one was used by the House of Hanover and by the household of the established Gov. From the hats of the military, it passed on to those of the civil servants of the Crown, and as headgear changed in fashion, the use of the C. became confined to servants only. Hence the custom of generations was established by which the use of the C. is confined to

the servants of those who bear commissions from the Crown or its delegates, i.e. justices of the peace, who receive commissions from the lord-lieutenant of the county.

Cockaigne, Land of (Old Fr. *coquaigne*, modern Fr. *cocagne*, coming through It. *cocagna* and Lat. *coquere* from a word meaning 'cakes,' and thus literally meaning 'Land of Cakes'), an imaginary land familiar in mediæval romances, in which it was possible to live a luxurious life of perfect idleness. All the features of the landscape were good to eat or drink; the rivers were of wine, the houses of cakes and sweetmeats, and the streets of pastry, while roasted geese and fowls and buttered larks went about asking to be eaten. There is a thirteenth century Eng. poem, *The Land of Cockaygne*, which ridicules monastic life. The term has been applied to London in its aspect to the rustic of the city with streets paved with gold, and this has probably led to its frequent confusion with 'Cockney.'

Cockatoo, a bird belonging to the family Psittacidae, of the sub-order Psittaci, of the order of the Cuculiformes. They are closely related to the true parrots, with which they are commonly considered. True Cs. are light in colour, generally white with tinges of red and orange. They are found in Australasia and the E. Indian Is. The term is often extended to include allied genera of dark plumage, such as the black C.

Cockatrice, a fabulous monster believed in anct. and mediæval times (see Pliny, *Natural History*, and Aldrovandus, seventeenth century), said to come from a cock's egg hatched by a serpent and to possess deadly powers, being able to wither plants (except rue) and to kill men and animals (except the weasel) by its glance. The cock's crow killed it—hence travellers took the bird with them as a protection. In the Bible cockatrice merely means a very venomous reptile. It is sometimes identified with the basilisk.

Cockburn, Sir Alexander James Edmund (1802-89), Lord Chief Justice of England. He was educated at Trinity Hall, Cambridge; became a barrister in the Middle Temple, 1829; recorder of Southampton, 1840-46; Q.C., 1841; M.P. for Southampton, 1847-56; Solicitor-General, 1850. He was knighted in 1850; in 1851 he was made Attorney-General; recorder of Bristol, 1854-56; and became Lord Chief Justice of Court of Common Pleas in 1856, of Court of Queen's Bench in 1859, and of England in 1874.

Cockburn, Mrs. Alicia or Alison

c. 1712-94), a writer of Scottish songs, b. at Fairmile, Selkirkshire, her maiden name being Rutherford. In 1731 she married Patrick C., an advocate, the son of Adam C., Lord Justice-Clerk, and the brother of C. of Ormiston, the father of Scottish agriculture. She became a famous Edinburgh hostess, being noted for her wit, sprightliness, and conversational powers, and numbered among her intimate friends Scott (to whom she was distantly related), David Hume, John Home, and Lord Monboddo. She had considerable poetical abilities, and is best known for her version of *The Flowers of the Forest*, which first appeared in *The Lark* in 1765. Other songs by her appear in Johnson's *Musical Museum*, 1853. See her *Letters and Memoirs*, edited by T. Craig Brown, 1900.

Cockburn, Catherine (1679-1749), an Eng. miscellaneous writer, whose works include: *Agnes de Castro*, a tragedy, 1695; *Verses on Congreve's Mourning Bride*, 1697; *Fatal Friendship*, a tragedy, 1698; *The Unhappy Penitent*, a tragedy, 1701.

Cockburn, Sir George (1772-1853), a British admiral who served under Nelson with the frigate *Minerve* during 1796-1802. From 1803-5 he commanded the *Phaeton* in the East Indies; and in 1813 took an important part in the capture of Washington; in 1815 became commander-in-chief at St. Helena, having conveyed Napoleon there from Plymouth.

Cockburn, Henry Thomas (1779-1854), a Scottish jurist and judge, b. near Edinburgh, the son of Archibald C., a baron of the Scottish Court of Exchequer. In 1831 he became lord rector of the University of Glasgow, and in 1834 was promoted to the bench as one of the lords of the Court of Session, under the title of Lord C. He was appointed a lord commissioner of justiciary in 1837. He published a *Life of Lord Jeffrey* (2 vols.), 1852; while *Memorials of his Time*, a book full of humour and interest was published posthumously in 1856.

Cockburn, Hon. Sir John Alexander (1850-1929), an Anglo-Australian statesman, b. at Corsbie, near Duns, Scotland; in 1875 he settled in S. Australia, and in 1884 was elected to the House of Assembly as representative for Burra, and in 1887 for Mount Barker. He was Minister of Education, 1885-87; Premier and Chief Secretary, 1889-90; Chief Secretary, 1892; Minister of Education and Agriculture, 1893-98. Made K.C.M.G. in 1900. He represented S. Australia at the Federal conferences and at numerous international congresses, and wrote *Australian Federation*,

1901. He was president of the International Philological Socy. 1917-19; and chairman of Swanley Horticultural College 1902-19. Died King's Coll. Hosp.

Cockchafer, or *Melolontha vulgaris*, a lamellicorn coleopterous insect in the family Scarabaeidae and section Melolonthides. The perfect creature is of a brownish colour, is over an inch in length, and is one of the most destructive of beetles, ruining crops and trees. When in flight it emits a loud whirring sound. Its life is short, but the larval stage is of very long duration, lasting from three to five years, most of which time is spent at some depth below the soil. The C. is common to continental Europe, but is not so frequently found in England.

Cockenzie and Port Seton, a fishing port on N.W. coast of Haddingtonshire, Scotland, on the Firth of Forth, 1 m. E. of Prestonpans, which is its station, and 4 m. N.E. of Musselburgh. The two villages now form one small port. Pop. 2838.

Cocker, see SPANIEL.

Cocker, Edward (c. 1631-75), Eng. engraver and teacher. His famous *Arithmetik*, published posthumously by Hawkins, 1678 (confined to commercial questions only), was popular for nearly a century. More than 100 editions were sold. 'According to Cocker' became a proverbial phrase. 'Daniel's Copy-book engraven by Edward Cocker, Philomath, 1664,' is preserved in the British Museum. Other works were: *A Guide to Penmanship*, *Tutor to Arithmetic*, and *Compleat Arithmetician*. See Pepys' *Diary*, and De Morgan's *Arithmetical Books*, 1847.

Cockerell, Charles Robert (1788-1863), an Eng. architect. He assisted in the excavation of the Æginean and Phigalian marbles. In 1819 he became surveyor to St. Paul's; and from 1840 to 1857 was professor of architecture at the Royal Academy. Among his best known works are the Taylor buildings at Oxford, 1841-42.

Cockermouth, an English tn. in Cumberland, at confluence of Derwent and Cocker Rs., 25 m. from Carlisle. Wordsworth's birthplace, 1770. Bordering on the Lake District. There are coal mines near; flax and woollen mills; it manufactures hats, hosiery, and paper, also thread for art needlework. There are interesting ruins of an old castle built about eleventh century, destroyed by the Parliamentarians, 1648. There are also Roman remains near by. Pop. 4856.

Cock-fighting, an ancient and widely-practised sport, consisting of

the pitting against each other for fighting of specially bred and trained game-cocks. It appears to have been known in India, China, and Persia, and was introduced into Greece from the East during the time of Themistocles. From here it spread to Asia Minor, Sicily, and Rome, and from Rome northward and westwards over the greater part of Europe. In most European countries it is now illegal, but it is still practised in Spain, and is popular in Spanish S. America, China, Siam, and the Malay Peninsula. It was probably introduced to England at a very early date by the Romans, but our first definite knowledge of it comes from a description by William FitzStephen, in the reign of Henry II., of the cock-fights at schools on Shrove Tuesday. It reached its highest popularity in the time of Edward III., and though it was prohibited, on account of the gambling it entailed, about 1366, it continued to be a favourite sport for many centuries. Henry VIII. built the famous royal cockpit at Whitehall, and the pastime was known as the 'royal diversion' during the time of the Stuarts. James I. and Charles II. were enthusiastic devotees, the former being said to have attended at least two fights a week. C. was rigorously opposed by the Puritans, and Cromwell managed to suppress it entirely for a short time. It was finally abolished by law in 1849. The sport was introduced into Scotland about 1681, and here partridges were frequently used instead of cocks, while in Wales a special form of combat, known as the 'Welsh main,' was evolved. The cock-pits were usually circular, about 20 ft. in diameter, consisting of a stage covered with matting and surrounded by a barrier round which the audience stood. Almost every town in the kingdom had one, the larger provincial cities three or four each, and London a considerable number, of which the best known were in Westminster, Drury Lane, Jewin Street, Birdcage Walk, Pall Mall, the Haymarket, and Covent Garden. The usual form of combat was that in which an agreed number of pairs of birds fought together, the final result being decided by the majority of victories on one side or the other. In the 'Welsh main,' on the other hand, eight pairs fought, and the eight victors were paired and fought again, and so on till only one bird was left alive. There was also the 'battle royal,' in which a certain number of birds were set upon each other and left to fight till all but one were killed. The game fowl is probably the nearest modern variety to the original Indian jungle-

fowl. A cock is fought when one or two years old, and is trained by diet and exercise for about a month previously. The wings, tail, hackle, rump, and comb are all carefully trimmed, and spurs, from 1 to 2½ in. long, attached to the heels.

Cockie-leekie, a soup, common in Scotland and the N. of England, made from a fowl boiled with leeks.

Cock Lane Ghost, an imposture which greatly agitated London about 1762. A house in Cock Lane, Smithfield, tenanted by a man named Parsons, was said to be visited by mysterious noises and by the apparition of a Mrs. Kent, who had died there two years before. Inquiry revealed that the visitation was the work of Parsons's little daughter, aged eleven, and was a scheme on the part of Parsons to blackmail Kent by making it appear that he had murdered his wife. Parsons was condemned to stand in the pillory three times and to two years' imprisonment. The house was visited by large crowds, among them being Dr. Johnson.

Cockle, the popular name of members of the Cardiidae, a family of eulamellibranchiate molluscs. The species are widely distributed in many seas, especially those of the tropics. The shells are strong, heart-shaped, and ribbed, and the foot is long and bent. By means of this foot the Cs. burrow in mud and sand and also leap over the sand for a short distance. *Cardium edule* is the edible C. familiarly known in Britain as an article of diet.

Cockney, a contemptuous term applied to a Londoner, strictly speaking to one born within the sound of the bells of Bow Church. Various more or less fanciful etymologies of the word have been suggested, but there is little doubt that that given by Dr. Murray of 'cocken-cy' = 'cock's egg,' which came to mean 'a child over-long nursed' and so 'a milkspoon,' is the correct one. The term seems to have been first used of Londoners in particular in the seventeenth century.

Cock of the Rock, or *Rupicola*, a genus of S. American passeriform birds, the males of which are very handsome, with a purple-crested head and general orange colour, and have the curious characteristic of performing a strange dance before an assembly of their species. The hen bird is dull-coloured, and does not partake of her mate's antics.

Cock of the Wood, see CAPERCAITIE.

Cockpen, a par. 2½ m. S. of Dalkeith. Dalhousie Castle, formerly the residence of the Marquis of Dalhousie, Gov.-Gen. of India 1847-56, is now a

school for boys. The grounds include those of the Laird o' Cockpen of Scottish song. Pop. 5717.

Cock-penny, a payment formerly made by the scholars of certain schools, especially in the N. of England, to their master at Shrovetide. It was originally intended to defray the expenses of cock-fighting, a regular institution at the schools.

Cockpit, originally the enclosed space devoted to the sport of cock-fighting. The site of an old C. opposite Whitehall was used for the erection of a block of buildings used by the Treasury and Privy Council, and the name survived until the nineteenth century. The name was also given to a theatre built in the early seventeenth century on the site where the present Drury Lane Theatre now stands. The C. was also the place in the old sailing men-of-war where the wounded were attended to during action, and was situated near the after-hatchway under the lower gun-deck.

Cockroach, a term employed in speaking of either the whole family of orthopterous insects known as Blattidae, or of certain members only of the family. The species are very widely distributed, and the British *black-beetle* is a true C., bearing little resemblance to a beetle. Some of the species are wingless, but usually the male has two well-developed pairs of wings—a stiff front pair called the *tegmina*, and a membranous hind pair—and the female bears rudimentary structures to represent each pair. In habit the insects are omnivorous and nocturnal. The female has a broader abdomen than the male, and her eggs are laid in hard capsules. *Phyllodromia Germanica*, the Croton bug of America, is common also in Europe, and is a representative species of C.; *Blatta* (or *Periplaneta*) *Orientalis* is the pest of British kitchens. See L. C. Miall and A. Denny's *The Structure and Life-History of the Cockroach*, 1886.

Cockscomb, see CELOSIA.

Cock's-foot Grass, a pasture grass of Europe, Asia, and N. Africa, valued chiefly as a food for sheep very early in the spring before its young leaves have had time to become tough.

Cockton, Henry (1807–53), an English novelist, b. in London; was ruined by a malting speculation. His works include: *Valentine Vox*, the *Ventriloquist*, 1840; *George St. Julian*, the *Prince*, 1841; *Sylvester Sound*, the *Somnambulist*, 1844; *The Love Match*, 1845; *The Steward*, 1850; *The Sisters*, 1851; *Lady Felicia*, 1852; *Percy Effingham*, 1853.

Cocles Horatius (Horatius the On-eyed), the Rom. who was the defender of the Sublician bridge. He

was aided by Titus Herminius and Spurius Lartius, and these three held out against Lars Porsena and the whole of his army, the Roms. destroying the bridge in the meantime. Horatius was eventually left alone, and after having asked the R. Tiber to receive him, swam across in safety to Rome. He was there received by his fellow-citizens who heaped upon him all possible honours. See Macaulay's poem *Horatius*.

Coco, a riv. of Nicaragua, Central America, known also as Wanks, Segovia, Yoro, Herbias, and Telpanesa. It rises in the N.W. in the department of Segovia, and forms part of the boundary between Nicaragua and Honduras, flowing into the Caribbean Sea at Cape Gracias-a-Dios. It is navigable for about 150 m., but large vessels cannot pass the sand-bar at the mouth.

Coco (or *Cuoco*), Vincent (1770–1823), an Italian politician and man of letters, was made member of the Royal Council by Joseph Bonaparte after the battle of Marengo. His best known works are, *Platone in Italia*, which may be described as a philosophical novel, and *Revoluzioni di Napoli*.

Cocoa, or *Cacao*. C. is prepared from seeds of several trees of the genus *Theobroma* (Gk., 'food of the gods,' a name given by Linnæus). The genus which belongs to the natural order Byttneriaceæ, comprises twelve species all indigenous to tropical America, and the most important of these is known as the *Theobroma cacao*. The C. tree is moderate in size, with large glossy elliptical leaves and clusters of small flowers, each cluster producing one fruit. This fruit or pod is from 7 to 10 in. long, and shaped somewhat like a cucumber. It has a hard, thick, warty rind, marked with ten longitudinal ribs, and of a rich yellow colour, toning to red on the side exposed to the sun. Within this are five cells, each containing a soft, pink, sweetish pulp in which are embedded the seeds, from 5 to 12 in each cell. These seeds, the C. beans of commerce, somewhat resemble almonds, and have a thin reddish-brown skin covering the dark aromatic kernel, which is oily and bitter to the taste. The C. tree, which is improved by cultivation, is largely grown in tropical America, the W. Indies, W. Africa, Ceylon, and the Dutch E. Indies. It begins to bear when about five years old, reaching its full vigour at seven or eight, and bears two crops in a year. For successful cultivation it requires a deep, well-watered and drained soil, with a warm climate, and shelter from

school for boys. The grounds include those of the Laird o' Cockpen of Scottish song. Pop. 5717.

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Coco, a riv. of Nicaragua, Central America, known also as Wanks, Segovia, Yoro, Herbias, and Telpanesa. It rises in the N.W. in the department of Segovia, and forms part of the boundary between Nicaragua and Honduras, flowing into the Caribbean Sea at Cape Gracias-a-Dios. It is navigable for about 150 m., but large vessels cannot pass the sand-bar at the mouth.

Coco (or **Cuoco**), Vincent (1770-1823), an Italian politician and man of letters, was made member of the Royal Council by Joseph Bonaparte after the battle of Marengo. His best known works are, *Plutone in Italia*, which may be described as a philosophical novel, and *Revoluzioni di Napoli*.

Cocoa, or **Cacao**. C. is prepared from seeds of several trees of the genus *Theobroma* (Gk., 'food of the gods,' a name given by Linnaeus). The genus which belongs to the natural order Byttneriaceæ, comprises twelve species all indigenous to tropical America, and the most important of these is known as the *Theobroma cacao*. The C. tree is moderate in size, with large glossy elliptical leaves and clusters of small flowers, each cluster producing one fruit. This fruit or pod is from 7 to 10 in. long, and shaped somewhat like a cucumber. It has a hard, thick, warty rind, marked with ten longitudinal ribs, and of a rich yellow colour, toning to red on the side exposed to the sun. Within this are five cells, each containing a soft, pink, sweetish pulp in which are embedded the seeds, from 5 to 12 in each cell. These seeds, the C. beans of commerce, somewhat resemble almonds, and have a thin reddish-brown skin covering the dark aromatic kernel, which is oily and bitter to the taste. The C. tree, which is improved by cultivation, is largely grown in tropical America, the W. Indies, W. Africa, Ceylon, and the Dutch E. Indies. It begins to bear when about five years old, reaching its full vigour at seven or eight, and bears two crops in a year. For successful cultivation it requires a deep, well-watered and drained soil, with a warm climate, and shelter from

strong winds, and, in the case of young plants, from the sun. When gathered, the fruit is 'sweated' or fermented for a time, varying from one to twelve days, by being placed in earthen vessels, in heaps on the ground or by being covered with earth, and occasionally stirred. By this means the pulp is destroyed and the seeds change colour and lose their bitterness. In some countries the beans are then washed, and later dried and cured by exposure to the sun. After 'claying' and polishing, the beans are packed in bags for export. The storage of the beans requires care, as in a damp atmosphere they become mouldy. A temperature of 140° F. should be



COCOA

maintained to destroy the grubs of the C. moth. The beans should also be sterilised. C. is manufactured for consumption in various ways, some method of preparation being necessary in order to render the large amount of nutritious matter, and particularly of fat, in the beans, digestible. The constituents of raw C. are roughly: Fat, 50 per cent.; albuminoids, 20 per cent.; water, 12 per cent.; starch, 10 per cent.; mineral matter, 4 per cent.; cellulose and theobromine, each 2 per cent. After cleaning and sorting into sizes the beans are roasted in rotating iron drums at a temperature of 260-280° F. They are next gently crushed and sifted to remove the thin outer shell, the beans remaining in small irregular pieces known as C. nibs. These are ground under heavy rollers into an impalpable paste, which dries into a

hard cake. In this form it is much used by sailors, travellers, etc., being scraped and boiled in water to form a highly sustaining beverage, but it contains too much fatty matter to be digestible in ordinary circumstances. A proportion of this C. butter, which is valuable for pharmaceutical purposes, is usually extracted by means of great hydraulic pressure at a high temperature, and the preparation thus formed comes on the market as cocoatina, C. essence, etc. Many prepared Cs. also contain a very large proportion of powdered farinaceous material. A 'soluble' C. is now in existence, obtained by treating the C. with an alkali, a method originated by Van Houten and now widely accepted. The broken and roasted shells are sometimes used in Spain and Italy as a cheap substitute for coffee, under the name of 'miserabile,' and are also employed as a cattle food. They contain a proportion of theobromine, the specific alkaloid found in C., which is less stimulating and more nutritious than the alkaloid of tea or coffee. To prepare chocolate, the fat is retained, and sugar and flavouring matters added to the paste, which is then moulded into tablets, etc.

About 500,000 metric tons of C. are produced annually, half of which comes from the Gold Coast. Brazil produces 79,000 metric tons and Ecuador 20,000. Consumption of C. has greatly increased, especially in the U.S.A., which import about 40 per cent. of the world's production. Of imports into Great Britain the largest amount comes from British W. Africa and other colonies, only about 5 per cent. coming from S. America. The total average import of raw C. is 68,250 tons, valued at £3,800,000. 10,550 tons of C. preparation, including chocolate confectionery, valued at £1,500,000, are also imported chiefly from Switzerland and the Netherlands, while the export of C. preparation from Great Britain is 8950 tons valued at £1,000,000. The export duty from the Gold Coast is high, and the transport from the plantations to the coast is a heavy cost on the industry, although negro head-portage and the trundling of barrels are being replaced by lorries and railways.

Cocoanut, the fruit of a species of palm (*Cocos nucifera*) found in most tropical regions, and reaching perfection in a sandy soil near the sea. It is found on even the smallest is. of the Pacific, the nuts being admirably adapted for distribution by ocean currents, and germinating readily when cast up on shore. The tree grows to a height of 60-100 ft., and consists of a cylindrical stem 1½-2 ft. thick, marked with rings where leaves

have formerly grown, and terminating in a crown of from sixteen to twenty graceful pinnate leaves each about 15 ft. long. These consist of a strong central rib, on both sides of which are numerous long thin leaflets. The flowers grow in branching spikes, 5-6 ft. long, enclosed in a spathe, and each of these produces from five to fifteen nuts. The C. as seen in England is the inner kernel, which is naturally enclosed in a thick fibrous outer husk. The inner shell contains the kernel, which in turn encloses a milky liquid. The tree begins to bear at seven or eight years of age, and continues to produce four or five crops a year for seventy or eighty years. Its uses to the natives of the regions where it grows are numberless. The nut, in various stages, is a standard article of food, and the milk forms an agreeable drink. The root is sometimes chewed as a narcotic; the young terminal bud 'palm cabbage' is a delicious vegetable; the sap, in various stages of fermentation, forms toddy, palm wine, and arrack, and is boiled down to form a sugar known as 'jaggery.' The leaves serve as thatch, and are plaited for mats and baskets; the trunk supplies a valuable timber known as porcupine wood; and the coir, or outer husk, is made into ropes, cordage, etc. The kernel also contains 70 per cent. of a fixed oil, which is obtained by pressure or boiling from the dried and broken nuts. It is largely used in the manufacture of candles and marine soap, and is also used as a substitute for lamp-oil, lard, and cod-liver oil for various purposes.

Cocoanut Beetle, or *Balocera rubus*, a species of Cerambycidae found in the East. The larvæ do much damage by eating the young cocoanut trees, and are themselves eaten by the natives.

Cocoanut Oil, or **Cocoanut Butter**, The oil is obtained from the fruit of the palm-tree, nearly three-quarters of the kernel being composed of it. It is a solid white buttery substance, and when made into soap it lathers well in sea-water. It is used in cooking in the tropics, and is also manufactured into candles and ointment.

Coco de Mer, so called from the fact that it was first seen floating on the Indian Ocean, is the fruit of a species of palm. The double cocoanut, as it is sometimes termed, is the largest fruit known, and takes ten years to attain maturity.

Cocomas, **Cocamas**, or **Cucamas**, an aboriginal tribe of S. American Indians, mainly inhabiting a district on the Marañon and lower Huallaga rivers, in Peru. They were first visited by Jesuit missionaries in 1681, and were then cannibals, but are now

partly Christianised, and considerably more industrious and courageous than most of the natives. It is suggested by a study of their language that they are a remnant of the Tupi-Guarani stock.

Cocoon (from Lat. *concha*, shell), pupa-case of many insects, especially of moths and silk-worms. This outer web or ball is spun from the mouth by caterpillars before passing into the chrysalis state. Originally the word was only applied to the C. spun by the silk-worm (*Bombyx*). It is now extended to all similar structures (e.g. silken case spun by spiders to receive their eggs). The pupal stage may last a long or only a short time, the covering splitting when the insect is ready to emerge. See Hyatt and Arms, 'Meaning of Metamorphosis,' in *Natural Science*, viii., 1896.

Cocos, see **KEELING ISLANDS**.

Cocos, a genus of tropical palms containing thirty species of graceful plants. The commonest of these is *C. nucifera*, the cocoanut palm, which serves a great variety of purposes in its native countries, and is well known to us on account of its edible fruit.

Cocteau, Jean, b. July 5, 1892, in Maisons-Laffitte, France. When he was only seventeen, he published his first verses. Since then he has thrown himself into every new movement in the artistic world of France, drawing upon the new artists and musicians like Picasso, Erik Satie, Darius Milhaud to collaborate with him in the production of ballets like his famous *Le Boeuf sur le Toit* and *Les Mariés de la Tour Eiffel*. He is first of all a poet, delighting in experiments with French verse, but he has also tried his hand at many kinds of work in prose. Two of his novels, *Le Grand Ecart* and *Thomas l'Imposteur*, had a considerable sale. His books of criticism *Carte Blanche*, *le Coq et l'Arlequin*, *le Secret Professionnel*, have become the guide-books for the younger writers. His latest volume is *Opium*, published in 1931, and presumably autobiographic, telling how the writer was cured of the drug habit. As with so many of his books, it is illustrated by weird drawings made by the author himself.

Cocumilia, the name of a kind of plum found wild in Calabria. It has the reputation of being a powerful febrifuge, and the bark is much used for the cure of intermittent fevers.

Cocytus (modern Vuvo), a riv. of Epirus, trib. to the Acheron, which flows into the Ionian Sea 20 m. N. of the Gulf of Arta. In Gk. mythology it was held to be one of the rivers of Hades, and the name, which means

'wailing,' refers to the cries of the dead. Hence Milton's 'Cocytus named of lamentation loud.'

Cod, or *Gadus morrhua*, an important species of bony fish in the same genus as the haddock, whiting, and pollack. Other representatives of the family Gadidae are the hake, ling and turbot, but the cod surpasses all these in economic importance; as a food it is much valued,

and a few members of its own family. It is the largest of the Gadidae, attaining a length of 4-5 ft. and weighing as much as 100 lb. The C. is found in the temperate regions of the N. hemisphere, along the N. European coasts, not farther S. than Gibraltar, and on the American coast, the fisheries off Newfoundland being especially famous. Other C. fisheries are those of the Lofoden



COCOONS OF THE SILKWORM

(Canadian Pacific)

and cod-liver oil is of great repute in medicine. The distinguishing features of the C. are the large mouth, of which the upper jaw is the greater, the distinct tail, elongated dorsal and anal fins, the wide gill-opening, the four gills with a slit behind the fourth, the freedom of the gill membrane from the isthmus, the absence of pseudobranchiæ, and the presence of an air-bladder. The body is generally of a dark grey hue, is elongated in form, and covered with small, soft scales, while a small barbel depends from the chin. It inhabits the deeper parts of the sea, and at the bottom betrays its carnivorous instincts, its food consisting of such animals as crabs, molluscs, worms, herrings

Isles off the N. coast of Asia. It spawns in the early part of the year between Feb. and April, and is very prolific, one fish producing as many as eight or nine million eggs. Of these, however, very few are over fertilised, and the young C. are quite small, being less than an inch long when first produced. C. fishing was an important industry five or six centuries ago, and was carried on by people of various nationalities, among them Fr. and Eng., on the shores of N. Europe and Iceland. The largest C. fisheries in the world at the present day are those of the Grand Banks of Newfoundland (about 500 fish being caught in eleven hours), while in Europe the industry is at its height

on the coast of Norway, though these fisheries are not so rich as they were. The C. are caught principally by lines and bait, long lines and hand lines both being employed. A large quantity of the C. caught off Newfoundland is dried and salted, and is then exported—a considerable amount—to to the countries of S. Europe. In addition to this, the fish furnishes other useful products, isinglass being obtained from the air-bladder, and cod-liver oil, as mentioned above, from the liver, this oil being used largely as a medicine for lung complaints. In some parts the heads of the fish are used as a food for cattle, and the roe is used alone for human food.

Cod, Cape, a sandy peninsula in Barnstable co., Massachusetts, U.S.A. on the Atlantic coast, between C. C. Bay on the N. and Nantucket Sound on the S. The length is about 65 m. and width 1-10 m. The extremity, Cape Race, bears a light. C. C. is a favourite summer resort, and contains numerous villages and holiday settlements connected by railway with each other and Boston.

Coda (Lat. *cauda*, a tail, through Italian), in music, a term applied to a passage concluding a composition or onemovement of it. It was originally only a few simple chords, but it has been developed, notably by Beethoven, into an important and elaborate feature of a composition.

Code. This word is now most commonly used to denote a collection of laws. There are several kinds of Cs. A C. may be made by merely collecting and arranging in a chronological or systematic order the existing laws of a state. Such a collection is either promulgated by public authority, as was the case with the Theodosian C. and Justinian's Cs., or by private individuals, as the Gregorian and Hermogenian C. Different Cs. have been made with different objects. Theodosius' motive was to promote the study of law, and with that end in view he published a collection of the constitutions (decisions) of the emperors from the time of Constantine. It was modelled on the earlier and private collections compiled by the jurists, Gregorianus and Hermogenianus. Justinian's first C. (529 A.D.) was founded on that of Theodosius, while the second was a revision of the first with the addition of a book of fifty decisions (534 A.D.). A considerable number of Cs. sprang from Rom. law, e.g. the Romano-Barbarian Cs.—*Edictum Theodorici*, the *Breviarium Alaricanum* (q.v.), and the *Lex Burgundionum* (Fr. *Loi Gombette*). The influence of the *Breviarium* of Alaric, according to Prof. Muirhead, was so great in Europe that until the

twelfth century it was from it rather than from the Justinian collections that W. Europe acquired such knowledge as it had of Rom. law. A code by which the legislative power makes a new system of laws—so far as that is possible—is very different from a mere compilation of existing laws. Of this latter kind are the C. Napoléon (q.v.) (1804-10) and the Germanic Civil C. (1900). The C. Napoléon, however, was based largely on the civil or Rom. law, and the Prussian C. borrowed its technical language from the Rom. law. Austin says the Fr. C. was never expected by its compilers to supersede all other law, but was meant to be supplemented or eked out by anct. customs and general principles of law and equity. With all its faults, and in spite of the fact that its original *projet* was drawn up in four months, its remarkable precision has caused it to be adopted as a model by several other European states. There is another but cognate sense in which C. is used to denote bodies of law credited with a divine origin, e.g. the Mosaic dispensation of the Pentateuch, and the Mohammedan law of the Koran. But a C., though it may adopt many existing laws or rules of law, is now generally used to express a comprehensive body of law suited for all the purposes of the community for which it is intended; and it may contain new principles and new rules of law.

Codeia, or **Codeine** ($C_{17}H_{17}ON$ (OCH_3), $\cdot OH$), an alkaloid forming .3 per cent. of opium. It is identical with *methymorphine*, and resembles morphine in its hypnotic effects. It is obtained in orthorhombic colourless crystals, with one molecule of water of crystallisation. It is insoluble in alkalis, but dissolves readily in alcohol, ether, and chloroform. In medicine C. is used as a soporific, but, like morphine, it must be employed with caution and only under the supervision of a medical man. It is used to allay the irritation causing cough when a paroxysm is likely to prove dangerous, and has been employed to this end in whooping cough. It is useful also in *diabetes mellitus*, where it tends to prevent the excretion of sugar.

Code Napoléon or the **Civil Code** of Fr. law. The term C.N. was suppressed in 1814, but re-established in 1852 out of respect for Napoleon's memory. Since 1870 the name *Code Civile* has come into general use. Before the Revolution there existed no unified system of laws, and France was divided between the '*droit coutumier*' in the N. and the '*droit écrit*' in the S., based on Rom. law. Under the Fr. constitutions of 1791

and 1793 it was promised to codify the laws, but it was not until Napoleon became First Consul that five commissions were set up in 1800-2 to codify the laws under five heads, of which the first is the Code Civil or C. N. Three jurists—Tronchet, Portalis and Bigot—were entrusted with the task of drafting the code, and, being from the N. they drew largely upon the 'droit coutumier,' but some sections of Rom. law were incorporated. The first fourteen laws were passed by the Assemblies in 1803 and the remaining twenty-two in 1804. The third and authoritative edition of the C.N., still in force, appeared in 1816. Napoleon is said to have been prouder of the C.N. than of his many victories. The code is clearly expressed in a straightforward style and is well arranged. It is divided into three books preceded by a preface. Book I (art. 7-515) is concerned with persons, and is subdivided into eleven sections, which deal with the distinctions between Frenchmen and foreigners, with civil domicile and with absence, with marriage and divorce, with paternity, adoption and paternal authority, and with minority and majority. Book II (art. 516-710) is divided into four sections, concerned with classification of property, with ownership, usufruct and easements. Book III (art. 711-2281) details the different ways ownership may be acquired. It has twenty sections, which come under seven main heads: successions; gifts *inter vivos* and wills; the theory of contracts or obligations; the marriage-contract; other contracts (sale, hire, loan, bail, etc.); priorities and mortgages; and prescriptions. The C.N. has been translated into Eng. by E. Blackwood Wright and others. (See CODIFICATION.)

Codex Bezae, see BEZA, THEODORE.

Codicil, a writing by way of supplement to a will, and which is to be considered as part of it, whether for the purpose of explaining, altering, or adding to the provisions of the will. In the Rom. law Cs. were small tablets on which memoranda or letters were written, giving directions to the heir, especially in regard to creating *fidei commissa* or trusts. By the Rom. law a testator could not alter his will unless he made an entirely new will. Hence the utility of Cs., which in Rom. law could be made whether there were a will or not. Such C. differed from the Eng. C., therefore, in that it did not mean a supplement to a will, but obligatory directions by tablets. Where a Rom. C. was confirmed by testament, it was operative to give legacies as well as to create *fidei commissa*. Rom.

Cs. had to be made in the presence of five witnesses. In Eng. law a will when once signed and attested cannot be altered without being re-executed except by a C. The execution of a C. operates as the re-execution of the will, and hence a C. duly executed as a will, will render a will which was not duly executed valid, provided the C. clearly refers to the will. Where a will is revoked by actual destruction, no C. can revive it. A C. forms part of the will, and is incorporated with it in the probate. If in any way inconsistent with the will, the C. prevails. A C. must be executed with the formalities of a will, that is, signed in the presence of two witnesses. See WILL.

Codification means the process of classifying laws or reducing them to a system or digest. Such process marks the matured stage in the development of any legal system. In its modern connotation C. is a word importing no change in the substance of law, but rather a process of addition and subtraction effecting such a change in form as will render law more intelligible and coherent, and less redundant and prolix. Law is essentially progressive. The assumption that it is static leads inevitably to supplementing the code by constant additions that finally deprive the code of all pretensions to finality. For example, Justinian not only expressly reserved in his code the right to make any legislative reforms he might see fit, but, in fact, within the space of thirty years added 165 *novellæ* or new laws. The element of truth in the above popular definitions of C. is that undoubtedly the law as codified is up to that point complete and exclusive. The most conspicuous modern instances of C. are: (1) The Code Napoléon (Code Civile) of 1804-7: a code which has been much animadverted on as the product of ill-considered haste and fallacious brevity. Following it were the Code de Commerce, Code Pénal, Code d'Instruction Criminelle, and various procedural codes. (2) The Code Frédéric of 1751, aimed apparently at the power of the advocates and intended to make law knowable to all. It purported to explain the Rom. law, Saxon law, and other foreign subsidiary laws and statutes, but left unimpaired the provincial laws of the Germanic states, which last fact is usually explained by reference to the want of homogeneity between the various states themselves. The avowed object of the above codes was to frame a common system in place of several systems, rather than to restate in exact and exhaustive form the whole of the existing laws. Eng.

law reformers have generally been satisfied with the solution of this last and less ambitious problem (see CODE and CONSOLIDATION OF STATUTES). (3) The code of the State of New York. This came nearer the desired English solution of the problem of an exhaustive restatement. But it affected to provide 'for every possible case, so that when a new case arises it is better that it should be provided for by new legislation.' As regards the British empire, India seems to have been the *corpus vile* for codificatory experiments. The Indian Evidence Act of Stephen (see EVIDENCE) and the Penal Code drafted by Macaulay seem to have worked well, but they certainly would not suit English exigencies and were rightly rejected here. These latter codes are characterised by a profusion of illustrations by way of graphically presenting the principles in more concrete form. The extent to which England itself has gone in the direction of codes will be seen on reference to the article on CONSOLIDATION OF STATUTES. The arguments for and against C. are legion. Austin appears to have been the first English jurist to state in clear terms the desirability of C., with refutations of the current objections. The current objections and his answers may be summarised as follows: (1) That a code cannot be complete so as to anticipate all conceivable cases. Austin denied that such a desideratum was the object of C. at all, for the mere assumption of its possibility was tantamount to a supposition that the existing morality was incapable of amelioration, and to the erroneous belief that the enactment of one parliament can bind all future parliaments. (2) That a code would give rise to conflicting analogies to the number of its provisions, and that these latter would be so numerous as to be unknowable. Austin answers this by pointing out that the incompleteness of statute law or any law is not obviated by making no law at all. It is clear, too, that all legal principles, or any principles for that matter, give rise to competing analogies. The choice between them is essentially the function of a judge. (3) Austin then speaks of the alleged failure of the French and Prussian codes. He answers this by pointing out that they were not fair examples of what they might have been had less haste been shown in producing them. Like the Roman Code, however, there was a lack of scientific precision in the Code Napoléon and it is marked by the same curious juxtaposition of principles, maxims, and philosophical speculation. None the less it is the

basis of the systems of most of the Latin races. Austin was for C. himself, and thought it was entirely a question of time and place. But a set-back was given to the cause of C. by the somewhat extraordinary ideals of Bentham. Bentham's age was essentially one of ideals. The contrast between his Utopian schemes and the chicanery of his times was too great to admit of the comprehension of the possibility of such reforms as he advocated; whence the tardiness which has attended their development. Bentham sets up the *beau idéal* of possible codes. The desire for C. in England is not prompted by the same reasons as have existed in other countries. The Ger. Code was the expression of a desire for national unity; the Fr., the manifestation of hatred for the old order of things. In England the desire is the merely practical if prosaic one of rendering law more accessible and coherent instead of being diffused over a vast mass of reports, textbooks more or less accepted as authorities, statutes, and vaguely defined usages.

Codigoro, a tn. of Emilia, Italy, on the Po di Volano, 23 m. E. of Ferrara, 8 m. from the Adriatic. Since the draining of the extensive marshes it has become a thriving agricultural district. Pop. 14,800.

Cod-liver Oil, a marine oil extracted from the liver of the cod-fish (*Gadus morrhua*). It is sometimes, however, adulterated with oil from the ling or turbot, but the latter are not officially recognised. The chief exporting countries are Norway and Newfoundland, the former utilising fish from the North Sea and the latter those of the Newfoundland banks. The processes of manufacture have improved greatly of recent years, and, in place of the old coloured and disagreeable fluid the best medicinal varieties are almost colourless and tasteless. Healthy and fresh cod-livers are taken and placed in the barrels, and the exuding oil ladled out. Gentle heating brings out more oil. These products, however, are not equal in value to that obtained in the next process, which consists in leaving the livers in rooms with freezing mixtures, when the oil which remains unfrozen is taken off and constitutes the best variety of oil. A coarse variety is next obtained by boiling down the remains of the livers. It is of dark brown colour and is used for treating leather. In the operation of stuffing, dubbin (a mixture of tallow and C. L. O.) is rubbed into the leather to make it waterproof and supple. C. L. O. has a great value as a food, and consequently has great

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vogue in wasting diseases such as consumption. It is the best fat food except cream, and is easily digested, especially when in the form of an emulsion—that is in small globules. This is probably due to the existence of free oleic acid to the extent of about 5 per cent., which is a good emulsive agent. There are also olein (80 per cent.) and palmitin and stearin, which are valuable glycerides. Owing to the repulsive nature of the oil to some stomachs, the doses should begin in small quantities of a teaspoonful and gradually increase to a tablespoonful.

Codogno, a tn. of Milan prov., Lombardy, Italy, between the Po and the Adda, 8 m. N. of Piacenza. It manufactures silks and the cheese known as Parmesan. Pop. 10,890.

Codoripo, a tn. of Venetia, Italy. Pop. 7940.

Codrus, the son of Melanthus, and the last king of Athens. He lived about the 11th century B.C. When the Dorians had invaded Attica he is supposed to have acted on the advice of the oracle, and to have given his life for his country.

Codrington, Sir Edward (1770–1851), a British admiral, b. at Doddington in Gloucestershire, and entered the navy in 1793. At Trafalgar (1805) he commanded the *Orion*, and subsequently took part in the Walcheren expedition. Rear-admiral in 1814, he led the fleet at Washington and Baltimore in the American War. In 1826 he commanded the combined fleets of Great Britain, France, and Russia at the Battle of Navarino, in which he destroyed the Turkish navy, but was held to have exceeded orders and recalled. He became admiral of the Red in 1837, and in 1839 was appointed commander-in-chief at Portsmouth.

Codrington, Sir William John (1804–84), a British general, second son of Sir Edward C. (*q.v.*). During the Crimean War he distinguished himself at Alma and Inkerman, and was in 1855 raised to the rank of commander-in-chief in the Crimea. Afterwards became Governor of Malta (1859–65).

Cody, Samuel Franklin (1862–1913) ('Colonel Cody'), aviator and inventor of a triplane, was b. at Birdville, Texas. His aviation began in England in 1908; he competed at various meetings, including Doncaster and Bournemouth. Won War Office prize, 1912. He was killed in an aeroplane crash near Aldershot, Aug. 7, 1913.

Cody, William Frederick (1845–1917), famous all over the world as 'Buffalo Bill,' and one of the last of the picturesque figures of the far west in the U.S.A. before it became a settled agricultural country, b. Scott co., Iowa, U.S.A., Feb. 26.

In the days before the great trans-continental railways were built across the prairies and through the mountains to the Pacific coast, C. became noted in the 'sixties as one of the chief riders for the famous Pony Express. This was organised by a company which undertook to forward the U.S.A. mails from St. Joseph, Mo., to Sacramento, California, by means of intrepid men who rode relays of ponies through country often dangerous because of hostile Indians. Upon the outbreak of the Civil War, C. became one of the most skilful scouts and guides for the Northern troops operating in the middle west. Upon the close of the war, when Congress gave huge land grants to companies undertaking to construct railway lines to the Pacific Coast, C. obtained the contract to supply the railway workmen, who were laying the lines, with fresh supplies of buffalo meat. The buffalo, or more correctly the bison, then roamed the prairie lands in thousands. It is recorded that C. killed 4820 bison in eighteen months. Ever afterwards he was known as 'Buffalo Bill.' After that, he again served his country in the wars against various Indian tribes. Then looking around for 'fresh worlds to conquer,' Colonel C. recalled that the youth of two continents had been fascinated by tales regarding the Indians, the cowboys and the trials of settlers who were attacked by the red men. He gathered together a band of cowboys, who were expert riders and lasso-throwers, and also secured a large number of Indians of various tribes through arrangements with the U.S.A. Gov. This was the beginning of his famous travelling entertainment 'Buffalo Bill's Wild West Show.' It was an enormous success in the eastern states of the U.S.A. Colonel C. then took the huge organisation to England and to the leading countries of Europe, and repeated his success, the show being different to anything ever before offered in the Old World. C. d. in Denver, Colorado, Jan. 10, 1917.

Coedfranc, tn. of Glamorganshire, Wales, on Neath Canal, 1 m. N. of Neath. It has copper mines. Pop. 9327.

Co-education, a method of education in which young persons of both sexes are taught together in the same classes. Such a system was the custom in the old parish schools in Scotland and New England, but hardly from any theoretic belief in its advantage. The system has, however, of late years obtained many supporters, chiefly owing to its advocacy by Pestalozzi. It is widely

practised in U.S.A. and in the British elementary and evening schools, and to a lesser degree in secondary schools. It also appears to be increasing in popularity in Protestant European countries. In private schools and in the larger High Schools for girls provision is usually made for the education of boys up to nine years of age with the other pupils; the Montessori system of education encourages the mingling of the sexes. Before the Great War most of the universities admitted women on a more restricted basis than men, but since then Oxford too has become more lenient in its attitude towards women, and there is scarcely any branch of university education in Britain to-day not open equally to members of both sexes. See Alice Wood's *Co-education*, 1903.

Coefficient, in algebra, denotes the numerical quantity preceding an algebraic term and by which the term is to be multiplied. It is also used to denote the ratio of the increase or decrease of any quantity with a change in a variable quantity which determines its condition. Thus the linear C. of expansion of any material with temperature denotes the increase in length per unit length for one degree rise in temperature. We may also regard it as the quantity by which the length of the material must be multiplied to give its expansion for one degree rise of temperature. Similar Cs. are the C. of pressure, viscosity, volume, etc. Of course the value of a C. will depend on the unit employed in the independent variable.

Coehorn, a small bronze mortar invented by Menno van Coehorn, the engineer, and named after him.

Coehorn (or **Coehoorn**), **Menno, Baron van** (1641-1704), a Dutch engineer. He inherited from his father a taste for military learning. During the Seven Years' War, his bravery at Maestricht and Seneffe, and the works of defence which he had constructed, made him famous. In 1674, at the siege of Grave, he used a mortar of his own invention. After peace had been declared in 1678 C. devoted his time to engineering work, and fortified many towns in Holland. When war began again he was to the front, as before, and met Vauban at the siege of Namur, where he had to surrender—but he was present at its recapture, and later on was made lieutenant-general. He was eventually summoned to The Hague to meet Marlborough, d. suddenly, attacked by apoplexy.

Cœlenterata (Gk. κοῖλος, hollow; ἑντερον, alimentary canal), the name of a large phylum of invertebrate animals, differing greatly in both

structure and habit. All are aquatic, and the great majority are marine. The name was given to them because of the peculiarity of the animals in having their enteric and body-cavities closely related and not distinct from one another. A very general feature is the presence of stinging-cells, and nearly all the cœlenterates are radially symmetrical. The nervous and vascular systems are absent or rudimentary, and the body-wall consists of an inner and outer layer of cells, called respectively the endoderm and ectoderm. Reproduction is often sexual, but vegetative multiplication by budding and fission is also common. Both medusoid and polypoid types occur in the C., and in the latter a limy skeleton is frequently developed, and thus forms a coral. The group is divided into three classes, the Hydrozoa, Scyphozoa, and Anthozoa (or Actinozoa). The first class is represented by many well-known animals, e.g. the fresh-water *Hydra* (q.v.), several corals and small jelly-fishes, and the Portuguese man-of-war. The second contains the large jelly-fishes often cast up on British shores or found floating in the water, and dreaded by bathers on account of their stinging powers. The third class includes the sea-anemones, dead-men's-fingers, and other corals. The Ctenophora, e.g. *Beroë* and *Cydlippe*, are regarded by many zoologists as a division of the cœlenterates, while others regard them as belonging to a separate phylum. The species are very widely distributed, some are free-swimming, others are sessile, and a few are parasitic. Small organisms constitute the greater part of their diet, and in obtaining their food the stinging organs are frequently called into action.

Cœlestinus, see **CELESTINE**.

Cœle-Syria (modern El Bukā'a Beka'a, or Bika), a valley of Syria, between the ranges of Lebanon and Anti-Lebanon. Altitude 2600-3000 ft.; length about 100 m. Through it flow parts of the Nahr-el-Litany (anc. Leontes) and the Nahr-el-Asi (anc. Orontes). Called Hamath in the O.T.

Coelho, Francisco Adolpho (b. 1847), a Portuguese philologist, noted for his profound studies of the Romance languages. Like the brothers Grimm, the celebrated German philologists, he has also published a collection of fairy tales, *Contos Populares Portuguezes*, 1879. Philological works: *Origem da Língua Portuguesa*, 1870; *Questões da Língua Port.*, 1874; *Os Dialectos Romanicos na Africa, Asia, e America*, 1880-82.

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B.C., and was a Rom. lawyer and historian. He was the first who introduced an ornamental style into his writings which were highly rhetorical. He wrote the history of the Second Punic War, and the historian Livy has quoted from his works.

Coello, Claudio (1621-93), a Spanish painter, b. at Madrid, who became painter to King Charles II. His masterpiece was 'Charles on his Knees among the Nobles of his Court.' When Luca Giordano was given a commission by the king, C. fell into a melancholy state, imagining that his brother artist was preferred. He was a great painter, and some of his best works are at Madrid and Salamanca.

Coeln, Wilhelm von, a German painter of the fourteenth century. His chief works were mural paintings, the most important being in a chapel of Cologne Cathedral. There are also various other works in different picture galleries which are said to be his.

Cœlogenys, or *paca*, a S. American genus of rodent mammals in the family to which the agoutis belong. There are only two species; these differ from the agoutis in having five digits on all the limbs in opposition to the three digits of their allies. The animals are remarkable for a curious structural peculiarity in the skull, the jugal arch being greatly developed and almost concealing the lower jaw. *C. pacca*, the spotted cavy, is one of the largest of rodents, measuring about 2 ft. in length, 14 in. in height; the body is covered with short, stiff wiry hairs, and the tail is greatly reduced. It is nocturnal and vegetarian, lives in a superficial burrow in forests near water, the female produces a single young one at a birth, and the flesh is much sought after as food.

Cœlomata (Gk. κοίλωμα, cavity), a wide term, comprising all animals which possess a cœlom, or body-cavity, and it thus excludes only a few lower organisms, viz. the Protozoa, Porifera, Cœlenterata, and doubtfully the Platyhelminthes, Nemertea, Nemathelminthes, and Potifera. The cœlom is a part of the enteric cavity which has retained its connection with the enteron, but has lost connection with the part that constitutes the alimentary canal. It performs the functions of producing the reproductive cells and secreting the nitrogenous waste.

Coemptio (joint-purchase), in Rom. law, a form of civil marriage, so called from the mutual fictitious sale of the two parties. The ceremony took place before five witnesses and a 'libripes' (holder of the balance).

Cœnobites, or Cenobites (Lat. *cenobita*; Gk. κοινόβιος, common, βίος, life),

members of a religious order living a community life as opposed to hermits.

Cœnurus, now known to be merely the asexual stage in the life-history of certain Cestoda, or tapeworms, was formerly considered to be a distinct animal. This bladder-worm lives in an intermediate host which is eaten by a vertebrate before the parasite matures. *C. cerebralis* is the bladder-worm which is found in the brain of a sheep and gives rise to *staggers*, a disease which often works great havoc among a flock. *Tenia cœnurus* occurs in the dog.

Coffee, and Coffee Trade (Turkish *qahveh*, from Arabic *qahveh*, wine, the coffee-beverage), a beverage made from the roasted seeds of the coffee-tree (*Coffea Arabica* being the best known of some twenty species of *Coffea*, few possessing such valuable properties). Originally a native of Abyssinia and Arabia, this tree has been introduced to many parts of Europe, America, Central Africa, and is now extensively cultivated in most tropical and sub-tropical regions. The *Coffea* (*Caffea*) genus belongs to the order Cinchonaceæ. When wild, the tree is tall and slender with few branches, but the cultivated kind is pruned to a height not exceeding 6-10 ft., and trained in a pyramidal form with horizontal branches. The leaves are evergreen and shiny. They grow opposite, are leathery, and oblong in shape; the flowers are snow-white and small, clustered in the axils of the leaves, and very sweet-smelling. The ripe fruit is a dark scarlet colour, and contains two cells, each with a single seed. These seeds, called also coffee-beans (from Arabic *bunn*, coffee), coffee-nibs, or coffee-berries, are hard semi-ellipses. The *Caffea Mauritiana* has bitter, slightly emetic seeds. The Liberian coffee-plant of W. Africa has been introduced into Ceylon, and seems more hardy than *C. Arabica*, and better able to withstand the ravages of the leaf-disease which proves so injurious to coffee-plantations. Coffee succeeds best in countries whose yearly temperature averages 60-90° F. It flourishes in well-drained, sandy, or gravel soils, and on highlands, 1000-3000 ft. above sea-level. In Peru and Ecuador it is cultivated at a height of 6000 ft., but escapes frosts. Coffee-plantations are usually laid out in quadrangles, one-year-old trees, 12-16 ins. high, being set in rows. They are pruned to the same height, the ground being kept clear of weeds. Shade is needed, especially at first, and always in hot, dry climates, when irrigation is also necessary. The water-supply should be lessened as the fruit ripens. Nor-

mally the first crop is yielded in the third year (amounting to as much as 2 lb. of seeds), and the trees live forty years. In the W. Indies and Brazil three annual gatherings are made. The beans are put on mats, dried by the sun, and often turned. They are passed between rollers to remove the dried pulp, freed from impurities by winnowing, and put in bags for export. The quality and price depend largely on the care expended in the process of preparation. Used in Abyssinia and Ethiopia since the earliest times, coffee was introduced into Arabia by the fourth century, soon spreading to the rest of the East. Rauwolf made it known

of preparing coffee for the table, the Western idea being to get the liquid free from all sediment by means of strainers of different kinds. The Turks drink their coffee thick, and what is known as Sultan's or Sacca coffee is prepared from the pericarp of the husks or seeds. A number of cheaper substitutes are frequently used instead of coffee, or mixed with the ground berries, notably chicory-root, dandelion-root, cereal, carrot, yellow iris seeds, etc. The seeds of *Astragalus baticus* are known on the Continent as Swedish coffee. All these lack the chief constituent, 'caffeine,' and are much inferior (see ADULTERATION). Real coffee is



COFFEE IN FLOWER

[H.M. East African Dependencies

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very refreshing, stimulating the system and diminishing the waste of tissues (see TEA). It is an antidote to opium or alcohol-poisoning. Its four chief constituents are caffeine, volatile oil, cafeeo-tannic and cafeeic-acids. The coffee trade is very important, Brazil being by far the chief producer. Coffee is also largely exported from Mexico, Central America, Java, Sumatra, India, Ceylon, Arabia, Hawaii, and the West Indies. A great deal of the coffee consumed in Britain comes from Costa Rica, 50 per cent. of the total exports of this country being coffee. Kenya Colony is also developing its coffee market with Britain. Receipts from the customs on coffee and cocoa are somewhat fluctuating, but show a marked decrease since 1927, the largest return being roughly £908,000.

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The consumption of coffee per head in Great Britain and N. Ireland was 0.95165 in 1927, as against 1.08 in 1840, part of the decline being due to the greater prevalence of tea-drinking. See Walsh, *Coffee: its History*, 1902; Look, *Coffee: its Culture and Commerce in all Countries*, 1888.

Coffee-houses, first known in Cairo, were established in Constantinople during the latter part of sixteenth century, and are referred to in the writings of Burton (1621) and Bacon (1627). In the second half of the seventeenth century they were established in many European cities, Vienna (1645), Marseilles (1671), Hamburg (1679), Nuremberg (1686), Augsburg (1713). The first English C. was opened in Oxford in 1650 by a Jew named Jacobs, while the first London one dates from 1652, and was opened in St. Michael's Alley, Cornhill, by a Ragusan, Pasqua Rosee. They very speedily became extraordinarily popular and were much frequented. In 1675 Charles II. attempted to suppress them as being the place of resort of the politically discontented. They served to a great extent as clubs. Among the most famous were Garraway's and Jonathan's, both in Change Alley, the former the scene of many a rash speculation during the time of the South Sea Bubble, the latter, according to the *Tatler*, 'the general mart of stock-jobbers'; Lloyd's; the Jerusalem, which also served as a news-room; Don Saltero's, with its attached museum of curiosities; Wills's, which Dryden visited; the St. James's, where the members of the Whig party met and Goldsmith originated his *Retaliation*; Button's, the favourite resort of Addison and Pope; and Tom's, in Birch Lane, Cornhill, which Garrick frequented. At the present time Cs. are merely eating-houses without licence for sale of intoxicants, and exist throughout the British Isles. In France the café chantant is merely a kind of informal music-hall.

Cofferdam, a structure used by an engineer in the building of bridges, piers, and any other such erection whose foundations are under water. The purpose of the C. is to keep these foundations water-tight, and it is made, as a rule, of two rows of piles, the distance between them being variable, sometimes 6 ft. and sometimes less. This distance is filled in with clay puddle, which thus resists the force of the water and ensures that the part protected is water-tight. If there is very little pressure of water and no current, a very simple form of C. may be used. This is made entirely of clay; but the piles are

more generally used, as they effectually prevent the force of the water from driving in the walls. If a permeable soil overlaps a hard rock, the former should be dredged so that there may be no leakage in the foundation.

Coffey's Still, an apparatus for separating substances of different degrees of volatility from a liquid mixture. Different varieties of the C. S. are used in the spirit, ammonia, and coal-tar industries. In whisky distilleries the still consists of one or two vertical columns separated into chambers by perforated copper plates. Steam is introduced at the base of one column and passes upwards through the perforations in the copper plates. The wash, or dilute alcohol, is introduced at the top of a column, is prevented from passing through the perforations by the pressure of the steam, and descends from chamber to chamber by means of a pipe, whose mouth stands slightly above the level of the copper plate. By this means the steam is kept in contact with the wash, and the more volatile constituents, including the alcohol, pass with the steam to the base of the cooling column, where they condense at different levels according to their boiling-points. At the level above which the alcohol condenses, the chamber floor is not perforated, so that the alcohol collects and is carried away by a special pipe. The still more volatile constituents are conducted to a water cooling chamber. The strength and quality of the distillate are controlled by regulating the pressure of the steam and the rate at which the wash is pumped up to the analysing column.

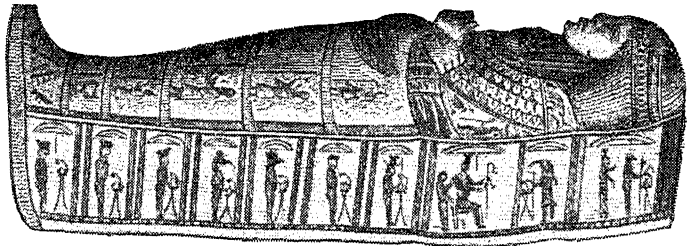
Coffeyville, city of Montgomery co., Kansas, U.S.A., on the Verdigris R., 19 m. S.E. of Independence. The centre of natural gas area, oil and coalfields. It has numerous mills and factories. Pop. 16,198.

Coffin (Lat. *cophinus*, a basket or chest), the receptacle in which dead bodies are buried. The earliest known use of Cs. is in anct. Egypt, where they were made of wood and stone. The word is used only once in the Bible, referring to the burial of Joseph. The Gks. and Roms. seem to have used Cs. in anct. times, but later resorted to cremation. The Gk. Cs. were of various shapes, and usually made of baked clay; the Rom. carcae, or loculi, were frequently made of a particular kind of stone which had a corrosive action on the flesh. The early Christians in Rome always buried their dead in Cs., which were either hewn out of the living rock or formed of sculptured stone. Cs. appear to have been used by other European nations from pre-

historictimes. These have been found in Scandinavia both of hollowed tree-trunks and of stone slabs lining the grave. This latter form, known as the *kistvaen*, has also been discovered in Britain. In mediæval times in England the lower classes seem to have simply buried their dead wrapped in a cloth; but the wealthier people employed tapering stone Cs. and occasionally leaden ones. The light wooden C. now used is of recent origin. Wicker Cs., which have many sanitary advantages, have been introduced, but with little success.

Cogalniceanu, Michael (1817-91), a Rumanian statesman, *b.* at Jassy; studied at Paris, and wrote at the age of twenty his *Histoire de la Valachie et de la Moldavie*, 1837. Upon his return to Moldavia he did much by his writings to pave the way for the revolution of 1848. He was a

whereas agnates were persons related through males only. The foundation of *cognatis* was thus the legal marriage, while agnates were such persons as were under the same *paterfamilias*, or would be, were he still living. Those who were of the same blood by both parents were sometimes called *germani*; *consanguinei* were those that had a common father only, and *uterini* those that had a common mother only. In reckoning the nearness of C. reference is made to the common ancestor. Each generation is counted up to and including the common ancestor and thence down again along the other line, so that an uncle and a nephew are C. of the third degree, first cousins of the fourth degree, and so on. In Eng. and Scots law C. are persons related through the mother, and agnates those related through the father.



AN EGYPTIAN STONE COFFIN

staunch advocate of the union of the two principalities of Wallachia and Moldavia, and in 1859 was chosen by Prince Cuza as his Prime Minister. His administration was of an enlightened character, and he introduced a better educational system, secured distribution of land among the peasantry, and abolished serfdom. He published a collection of old Rumanian chronicles in 1872, and his *Esquisse sur les Tziganes* in 1873.

Coggeshall, a tn. of Maldon div. of Essex, England, on the R. Blackwater, 6 m. S.E. of Braintree. Its manufactures include silk, velvet, and isinglass. Pop. 2500.

Cognac, a tn. of France, in the dept. of Charente, with anct. church and old buildings, including a castle which is now filled with brandy. C. is the centre of the production of and trade in brandy and the making of casks and corks. It was for long one of the Huguenot strongholds. Pop. 19,630.

Cognates (Lat. *cognatus*). In Rom. law C. were persons who were sprung from a common marriage, either through male or female antecedents,

Cogne, a tn. of Turin prov., Piedmont, Italy, in the C. valley, 9½ m. S. of Aosta. There are deposits of iron ore in the neighbourhood. Pop. 2000.

Cognisance, *see* BADGE, CREST.

Cognovit, a plea in an action at law operating after the manner of a recognisance, by which the defendant acknowledged or confessed the justice of the plaintiff's claim (*cognovit actionem*). The effect of a C. was to obviate the necessity of a trial, judgment being allowed to go by default for the plaintiff. Cs. are obsolete at the present day, the same result being attained by the simple process of signing judgment by consent.

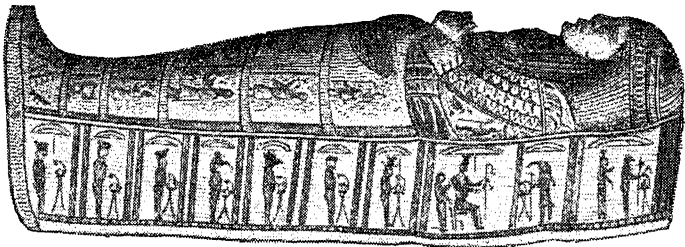
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Cohan, George Michael, American playwright and actor, and until 1914 manager of New York theatres; *b.*

historictimes. These have been found in Scandinavia both of hollowed tree-trunks and of stone slabs lining the grave. This latter form, known as the *kistvaen*, has also been discovered in Britain. In mediæval times in England the lower classes seem to have simply buried their dead wrapped in a cloth; but the wealthier people employed tapering stone Cs. and occasionally leaden ones. The light wooden C. now used is of recent origin. Wicker Cs., which have many sanitary advantages, have been introduced, but with little success.

Cogalniceanu, Michael (1817-91), a Rumanian statesman, *b.* at Jassy; studied at Paris, and wrote at the age of twenty his *Histoire de la Valachie et de la Moldavie*, 1837. Upon his return to Moldavia he did much by his writings to pave the way for the revolution of 1848. He was a

whereas agnates were persons related through males only. The foundation of *cognatis* was thus the legal marriage, while agnates were such persons as were under the same *paterfamilias*, or would be, were he still living. Those who were of the same blood by both parents were sometimes called *germani*; *consanguinei* were those that had a common father only, and *uterini* those that had a common mother only. In reckoning the nearness of C. reference is made to the common ancestor. Each generation is counted up to and including the common ancestor and thence down again along the other line, so that an uncle and a nephew are C. of the third degree, first cousins of the fourth degree, and so on. In Eng. and Scots law C. are persons related through the mother, and agnates those related through the father.



AN EGYPTIAN STONE COFFIN

staunch advocate of the union of the two principalities of Wallachia and Moldavia, and in 1859 was chosen by Prince Cuza as his Prime Minister. His administration was of an enlightened character, and he introduced a better educational system, secured distribution of land among the peasantry, and abolished serfdom. He published a collection of old Rumanian chronicles in 1872, and his *Esquisse sur les Tziganes* in 1873.

Coggeshall, a tn. of Maldon div. of Essex, England, on the R. Blackwater, 6 m. S.E. of Braintree. Its manufactures include silk, velvet, and isinglass. Pop. 2500.

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Cohan, George Michael, American playwright and actor, and until 1914 manager of New York theatres; *b.*

at Providence, R.I., July 4, 1878; son of Jerry John, actor, and Helen Frances (Costigan) actress. C. made first stage appearance at age of nine, at Haverstraw, N.Y., in *Daniel Boone*; appeared in *Peck's Bad Boy*, 1890; then became famous in vaudeville in *The Four Cohans*. Twice married. Acted in his own plays: *Little Johnny Jones*, 1904-6; and *George Washington, jr.*, 1906-7. Other plays of his are: *The Wise Guy*; *The Governor's Son*; *Running for Office*; *Forty-five Minutes from Broadway*; *Popularity*; *The Talk of New York*; *Fifty Miles from Boston*; *The Man Who Owns Broadway*; *The Yankee Prince*; *Get-Rich-Quick Wallingford*; *The Little Millionaire*; *Seven Keys to Baldpate*; *Hit-the-Trail Holiday*; *The Tavern*; *The Song and Dance Man*; *American Born*; *The Baby Cyclone*; *The Merry Malones* (musical play). Has written many songs; including the famous American song of the Great War, 'Over There.' C. is one of the most popular American playwrights of to-day.

Cohen, Ernst Julius, Dutch (Jewish) chemist, b. March 7, 1869, at Amsterdam. Studied under Arrhenius in Stockholm, Moissan in Paris, and Van 't Hoff in Amsterdam. In 1898 he was Professor of Chemistry at Montreal, in 1901 he was at the Amsterdam Univ.; in 1902 he succeeded the famous Van 't Hoff at Utrecht Univ. In 1899 he discovered that tin exists in three allotropic forms, confirming Aristotle. He has pursued research into the allotropy of metals, and into piezochemistry. Also has written *Jacobus Henricus Van 't Hoff, his Life and Work*, 1912.

Cohesion, the molecular force which keeps the particles of a body together and resists rupture. It is strongest in solids, weaker in liquids, and almost insensible in gases. It varies with the nature of the substance and with its temperature. It is thought by some to be a specific force acting only at inappreciable distances, but Lord Kelvin says that it involves no other force than the force of gravitation, and is proportional to the product of the masses concerned, and inversely proportional to the square of the distance between them. The C. of the particles of a solid body is due to the close contact brought about by the solidification from a liquid state, crystallisation out of solution, electrochemical deposition, etc. Great pressure will cause two similarly constituted bodies to cohere; but as it is necessary to force the surfaces to fit each other exactly, more force must be used than that which, exerted

in a contrary direction, would cause a rupture. Two smooth surfaces of the same substance, however, can be made to cohere with but little pressure. *Adhesion* usually refers to the attraction existing between the surfaces of dissimilar substances. C. in a liquid means the attraction between the particles in the interior of the substance; the adhesive forces at the surface bounding a liquid and some other substance are dealt with in SURFACE TENSION and CAPILLARITY.

Cohn, Ferdinand Julius (1828-98), a Ger. botanist, who improved the microscope, and with it made far-reaching discoveries as to the growth of plant and animal cells. He contributed greatly to the overthrow of the doctrine of abiogenesis or spontaneous generation, and made preliminary researches upon the value of bacteriology in infectious diseases. He may, indeed, be justly held to be the founder of bacteriology, and published several works on insect epidemics, infusoria, and plant diseases.

Cohn, Klara (b. 1860), a Ger. novelist, whose works deal generally with life in the Eifel region and in Silesia. The best known are: *Das tägliche Brot*, 1900; *Die Rosenkranzjungfer*, 1901; *Die Wacht am Rhein*, 1902; *Wenn die Götter lieben*, 1903.

Cohoes, a manufacturing tn. with water power from the falls of the Mohawk in the co. of Albany, New York, U.S.A. It is situated on the R. Hudson, on the Erie Canal, and possesses large cotton and woollen mills, and manufactures machines, pulp, and hosiery. Pop. 23,226.

Cohort, the term used to denote a portion of a legion in the Rom. army. Ten Cs. made up a legion, which usually consisted of 6000 men. The first C., sometimes numbering 1200, had charge of the standard of the legion.

Coif (fr. *coiffe*, a cap), a head covering, more especially the distinctive badge of the serjeant-at-law. It was at first a close-fitting cap of white lawn or silk, but upon wigs becoming commonly worn it was represented by a small black patch with a white border worn on the crown of the wig.

Coimbatore, a dist. and tn. in the Madras presidency, India, with an area of about 7842 sq. m. To the W. lie the W. Ghats, and a branch of the same range forms the N. boundary. Salem and Trichinopoly are on the E., and on the S., Madura and Travancore. The district is well watered and fertile. Rice, tobacco, cotton, and sugar are grown. The chief towns are, Coimbatore, Erood, and Carroor. The town has several

high-schools and an active trade. Pop. of tn. 66,000.

Coimbra, a dist. of Beira, Portugal, with an area of 1499 sq. m. The soil is fertile, millet and wine being the chief productions. Cattle are reared in large numbers. Pop. 360,056.

Coimbra, a city of Portugal, and cap. of the dist. of C. It is situated

Coin, a tn. in Malaga, Spain, about 20 m. W.S.W. of Malaga. It is situated in a district abounding in orchards, and is known as 'the garden of Andalusia.' There are marble quarries in the vicinity. Pop. 12,290.

Coin, pieces of metal stamped with various devices, and intended to



EARLY COINS

1st line: Athenian silver Tetradrachma; a Thebian silver coin

2nd line: A Syracusan coin; gold double drachma of Philip II. of Macedon

3rd line: Golden octodrachma of Ptolemaeus I.; gold drachma of Hiero II.

on the r. b. of the R. Mondego, 24 m. from its mouth, 115 m. N.N.E. of Lisbon, and is noted as being the seat of the one university of Portugal, which was transferred from Lisbon in 1527. There are five faculties and 1400 students. The town library contains about 80,000 vols., and there are museums and laboratories. C. is an episcopal see and possesses two cathedrals. There are manufs. of earthenware, linen, and leather. Lamprey fishing is carried on. Pop. 20,841.

circulate as currency. The etymology of the word is uncertain, but the original meaning of the root seems to be that of 'a wedge.' Neither the Bible nor Homer gives any evidence of the use of Cs. in very early times. Herodotus ascribes the invention of stamped money to the Lydians, and the *Parian Chronicle* to the Æginetans in the ninth century B.C. Numismatic research points to the silver Cs. of Ægina, stamped with a turtle, as the most ant. known, while those of Lydia probably come next,

followed by the gold and silver Darics of the Persian empire in the fifth century B.C. Metal was very early used as a medium of exchange, but was weighed out by scales. The monetary systems of most European nations can be traced back to the pound of silver, still represented in the Eng. 'pound.' A few instances are known of Cs. of other than circular shape, but convenience and the prevention of the depreciation of the C. by clipping or shearing portions from the edges have tended to the universality of the round metal disk. The integrity of the C. as regards weight is also protected by milled and raised edges, and by the inscriptions and designs on its surface; all of which make mutilation easily perceptible. The design, etc., stamped on Cs. are usually symbols of the authority by whom they are issued, and the lettering confirms this, and generally includes the date of issue of the C. Among the numerous minor Grecian states, and in early mediæval Europe, a tremendous number of Cs. were made, separate coinages being issued not only by individual nations, but also by cities and even by families. Such local coinage was valid only within a restricted area, and the gradual centralisation of power led to the adoption of certain standard Cs. for international circulation. In modern times the right to coin money is a state monopoly, and Cs. are issued of two kinds: standard, where the weight of metal is equivalent to the face value of the C., and token, where the actual value of the metal is less than the face value of the C., as in the case of copper coinage. This is a matter which involves financial problems of considerable importance and difficulty. Numismatics, or the study of Cs., is valuable from antiquarian, historical, chronological, and artistic points of views. Much of our knowledge of Gk. and Rom. history and biography, and many of our ideas of the appearance of men and buildings, are due to the evidence afforded by the contemporary coinage, while many Cs., such as those of Syracuse, are of high artistic merit. For Gk. and Rom. Cs., see Eckhel's *Doctrina Numorum Veterum*, Rasche's *Lexicon Universæ Rei Numariæ*; the works of A. Morel; and the *Descriptive Catalogues* of Capt. W. H. Smith and Akerman. For Eng. Cs. see Leake's *Historical Account of English Money*, and the works of Smelling, Folke, and Ruding.

Coining is in England, as in all civilised states, a prerogative of the sovereign power, and therefore the crime of counterfeiting the current

coinage is severely punished. Under the old statutes it was made a form of treason. In 1861 the statutes relating to this offence were codified and unified for the whole United Kingdom by the Coining Offences Act, and this was further amended by the Counterfeit Medals Act of 1883. By the Act of 1861, the following offences are made high crimes, punishable by penal servitude to the extent of life: counterfeiting or making coins to resemble or pass for the current coin of the realm: colouring, casing, or washing over any coins or metals with intent to make them pass for gold or silver coin; buying, selling, receiving, or passing counterfeit coin at a lower rate than its denomination imports; knowingly importing counterfeit coin; making, mending, buying, selling, possessing, or conveying out of the Royal Mint any C. instruments. The clipping or lightening in any other manner of current gold and silver coin is a crime punishable with not more than fourteen years' imprisonment. The following offences are punishable with not more than seven years' imprisonment: unlawful possession of clippings, etc., taken from gold and silver coin; counterfeiting current copper coin; unlawfully making, mending, buying, selling, or possessing instruments for so doing; buying, selling, or bringing into the country such counterfeit coin at a lower value than its denomination imports; possessing three or more counterfeit gold or silver current coins with intent to utter them. Various minor offences are punishable with imprisonment or penal servitude for varying periods all under seven years. Such are the exportation of counterfeit current coin; the counterfeiting of foreign coinage, and the knowingly uttering counterfeit current copper coinage. The 1861 Act applies also to offences with respect to colonial coins. In the U.S.A., the prerogative of C. belongs to the Federal Government, and the separate states may not coin money. Offences against this law are punishable with hard labour for a period of not more than ten years.

Coire, or Chur, the cap. of the canton of the Grisons, Switzerland, still contains many fifteenth to seventeenth century buildings. The cathedral of St. Lucius was begun in 1178. The Episcopal Court occupies the site of the Rom. castrum, which commanded the roads leading over the passes. The tn. is mentioned as a bishopric in 452, and was freed from the bishop's rule in 1464. The townsmen embraced the Reformation in 1524. The painter Angelecy Kauffman (1741-1807) was

born here. Although C. is 1952 ft. above the sea, the climate is very mild. Pop. 15,600.

Coire, the fibrous covering of the coco-nut. Stripped off lengthwise, the fibres are manufactured into matting, ropes, cables, etc. It is prepared as follows. After soaking for months in water, until soft, the fibres are beaten to remove the superfluous matters, and then are spun into yarn and woven into articles or twisted into cables. Compared with hempen cables these are buoyant and of great strength and elasticity.

Cojedes, a state of Venezuela. Pop. 82,153. Cap. San Carlos. Pop. 6790.

Cojutepeque, a tn. of San Salvador, Central America, capital of Cuscatlán dept., 15 m. N.E. of San Salvador. It is situated near the volcano and lake of the same name. Has potteries, weaving and cigar trade and large market. Pop. 17,000.

Cokaine (or Cokayn), Sir Aston (1608-84), poet, was *b.* in Derbyshire, and belonged to an old Derbyshire family. He was educated at Trinity College, Cambridge. Although rather a dissolute man, he was a strong Royalist, and stood firm to his religious opinions. He wrote among other works, *Small Poems of Divers Sorts* ('The Obstinate Lady,' a comedy; 'Trappolin Creduto Principe, or Trappolin suppos'd a Prince,' an Italian tragi-comedy), 1658.

Coke, a form of fuel composed of the carbonaceous substance left when coal is heated in a confined space. The volatile constituents of the coal are thus lost, and a hard, brittle, porous substance, with a slight metallic lustre, is left. It does not soil the fingers when touched, and burns with an intense heat and no smoke. These advantages, together with the facts that it is relatively free from sulphurous fumes and does not produce sparks, render it a valuable fuel for use in metallurgy and various industrial operations. C. is produced in the manufacture of coal-gas as a by-product, but this variety is of inferior quality, and the regular method of manufacture is either by means of mounds or ovens. In the former case a caking variety of coal is stacked in a large heap round an open chimney covered with wet coke-dust, and fired from above. When all smoke has ceased to appear, the air-holes are closed, and the mound is extinguished and cooled with water. The same principle is employed in closed ovens, which, however, yield a better quality with a considerable saving of time and expense.

Coke, Sir Edward (1552-1634), a lawyer, came of a Norfolk family and

was *b.* at Mileham in that county. He was educated at Norwich School and Trinity College, Cambridge, and was called to the Bar in 1578. The following year he distinguished himself in the libel case *Cromwell v. Derby*, and soon after in *Shelley's* case, having been previously made reader of Lyon's Inn. In 1582 he married Miss Bridget Paston, receiving with her a large fortune, and in the course of a few years several very important appointments were conferred on him. In 1586 he was made Recorder of Norwich, in 1592 Reader of the Inner Temple and Solicitor-General, in 1593 Speaker of the House of Commons, and in 1594 Attorney-



SIR EDWARD COKE

General, thus being successful over his rival, Bacon, who wished to be appointed to the last-named office. In 1606 he became Chief Justice of the Common Pleas, and in 1613 Chief Justice of the King's Bench. In 1598 C.'s wife died, and he married Lady Hatton, granddaughter of Cecil, Lord Burghley. This was his second success over Bacon, for the latter was refused by Lady Hatton. The marriage, however, proved a very unhappy one for C. Just after this he conducted several important trials, among them that of Sir Walter Raleigh, but this one does not redound to his credit, as his treatment of that nobleman was both discourteous and full of injustice. In his office of Chief Justice of the Common Pleas, C. maintained a vigorous defence of the law, for when the ecclesiastical courts wished to claim more power and King James was inclined

to support them, he was on the defensive, and was successful in winning the king over on his side. He was also opposed to James on several other occasions, as he had no exaggerated notion of the royal prerogative. He firmly established the fact that the king could neither make laws without the consent of parliament, nor could he declare any action to be an offence unless it were contrary to the law of the land. In the case of Peacham, who was accused of high treason, C. found himself in opposition to the king, this time with very little result. The opposition was continued by C.'s declining to refer to the king difficult cases in the Court of Chancery, and also in his contesting James's right to grant commendams, and in refusing to await the king's pleasure with regard to that granted to the Bishop of Lichfield. For these reasons he was dismissed from his office in 1616. He again took up public duties in 1620, when he was returned to Parliament as member for Liskeard. During this part of his career he concerned himself mainly with the reform of abuses. He opposed the marriage of Charles with the Infanta of Spain, and was insistent on freedom of speech for Parliament, thus alienating himself more and more from the king. After the death of James, C. vigorously opposed Charles I. in his illegal means of obtaining money. He was also instrumental in drawing up the Petition of Right, and at the time of the Grand Remonstrance he pointed out in parliament the evil caused in the country by the Duke of Buckingham. After this C. spent his time in retirement at Stoke Poges, where he died.

Coke, Thomas (1747-1814), a Methodist bishop, *b.* at Brecon and studied at Oxford. He made the acquaintance of John Wesley, and commenced a series of open-air services that led to his dismissal from his Somerset curacy. Allied then to the Methodists, he became president of the Eng. conference, and later superintendent of the Methodist societies in America, whither he made several voyages between 1784 and 1803. He published a *History of the West Indies* (1808-11) and, jointly with Henry Moore, a life of Wesley.

Coke, Thomas William, *see* LEICESTER, EARL OF.

Colac, a tn. of Polwarth co., Victoria, Australia, on Lake C., 50 m. S.W. of Geelong. Coal, iron, and limestone are found near. Pop. 4559.

Colard, Mansion, the first printer of Bruges, *d.* in 1484. His publications consisted of twenty Fr. works and one Latin one.

Colban, Adolfine Marie (1814-84), a Norwegian authoress, *née* Schmidt, whose works were very widely read in their day. Best known among them are *Laererinden*, 1869; *Tre nye Noveller*, 1875; *Jeg lever*, 1877; *En gammel Jomfru*, 1879; *Thyra*, 1882.

Colberg, or **Kolberg**, a tn. of Pomerania, Prussia, near the mouth of the R. Persante, 25 m. W. of Coslin. An old Hanseatic town, the former capital of the Rassube district, and till recently a fort. Now a watering-place, with manufactures of iron-ware and textiles. Pop. 26,718.

Colbert, Jean Baptiste (1619-83), a Fr. statesman, *b.* at Rheims. Probably spent some of his youth in the house of a banker. He was entrusted by Mazarin with his most important commissions. In 1659 he began his scheme for the reform of



JEAN B. COLBERT

finances, and at the same time his letter to Mazarin contained a bitter attack on Fouquet, which led to a quarrel finally settled by Mazarin. In 1661 he succeeded Mazarin, and in 1668 became Minister of Marine and also Minister of Commerce and of the king's household, having previously been made Controller-General. He had, in fact, almost supreme power over the financial affairs of the country. The finances of the country at this time were in a deplorable state, and C. reformed the whole system by doing away with extortion and unjust taxation, and by revising the method of collection. He next turned his attention

to commerce, and did all that he could to increase the manufactures of the country instead of importing manufactured goods from abroad. The lines on which he worked, however, were exceedingly narrow, and did not make for progress. The inspection as to quality and measure of articles was most rigid, and the protective tariffs hampered the trade considerably. Credit is due to C., for his reconstruction of the Fr. navy. He not only increased the number of men and ships, but also reconstructed Toulon and Rochefort, and fortified Dunkirk, Brest, and Havre. He turned his attention also to learning and art, being the founder of the Academy of Science and of the Observatory, the re-organiser of the Academy of Architecture and of the Botanical Gardens, and he encouraged scholars and artists from all parts of Europe. He had public buildings and monuments set up in Paris, and added pictures to the Louvre. He experienced great difficulties from Louvois, his rival, who had control of the war department. Peace was necessary to C. so that his reforms might be effectual, and in his later days he carried on a constant struggle to cut down the king's extravagances to this end. Louis XIV., however, transferred his favour to Louvois, and C.'s influence gradually declined till he died, stricken with a fever which had attacked him at intervals for several years before his death.

Colborne, Sir John, first Baron Seaton (1778-1863), a British general, who took part in the Battle of Corunna. He afterwards fought with Wellington, and was wounded at Ciudad Rodrigo. He also took part in the Battle of Waterloo, 1815. In 1838 he put down the rebellion in Canada.

Colburn, Henry (d. 1855), a publisher, produced the *New Monthly Magazine and Universal Register*, 1814; *Evelyn's Diary*, 1848; *Pepys' Diary*, 1825; *The United Service Magazine*, 1829. He also published the *Modern Standard Novels*, 1835-41. Was in partnership with Richard Bentley 1830-32, and retired from business in favour of Messrs. Hurst and Blackett.

Colburn, Zerah (1804-40), a mathematical prodigy, b. in Vermont, U.S.A. In his earliest years he displayed such extraordinary powers of rapid calculation that from 1810 he was publicly exhibited by his father, and came to Great Britain and France. He studied from 1816 to 1819 at Westminster School at the expense of the Earl of Bristol. On the death of his father he returned to America, and was from 1825 Pro-

fessor of Languages in Norwich University, Vermont.

Colby, Frank Moore (1865-1925), American editor, b. in Washington, D.C.; son of Stoddard Benham C. Graduated at Columbia Univ., 1888. Held appointments in connection with history and economics in Columbia Univ. and Amherst Coll.; and was Professor of economics at New York Univ. 1895-1900. On the editorial staff of *Johnson's Cyclopaedia* and *Nelson's Cyclopaedia*. Edited *International Cyclopaedia*, 1898 ed., and *International Year-Book*, 1898-1902. Edited *New International Encyclopaedia* from 1900; revision 1913-16, and supplement 1923-24. Also *New International Year-Book* from 1907. He wrote: *Outlines of General History*, 1900; *Imaginary Obligations*, 1904; *Constrained Attitudes*, 1910; and *The Margin of Hesitation*, 1921; *Essays*, 1924. D. in New York, March 3, 1925.

Colby, Thomas Frederick (1784-1852), a British major-general, who was connected with the Ordnance Survey, of which he became director. See Portlock's *Memoirs of General Colby*, 1869.

Colchagua, a prov. in Chile from the Cordilleras to the Pacific Ocean. Its capital is San Fernando (pop. 10,100). The principal crops are cereals; wine and cattle are produced. Pop. (1928) 303,263. Area 3856 sq. m.

Colchester, a municipal bor. in county Essex, on the R. Colne, about 52 m. N.E. of London. It is one of the most interesting and one of the oldest towns of England. It is built on a height, and is the site of the auct. town of Camalodunum, one of the first Rom. colonies in Britain, and remains of the old Rom. walls are still to be found. There are also in C. remains of a Norman castle with tremendously thick walls, and the ruins of St. Botolph's Priory, both of which are full of interest. The Archaeological Museum and the restored gateway of a Benedictine monastery are other points of interest in this town. Among modern buildings may be mentioned the town hall, free library, county hospital, the barracks, the grammar school, and a university extension college. C. does a large trade in oysters, and is an important market for corn, being the centre of an agricultural district. It also manufactures boots and shoes. The town has been granted various charters from time to time, the first dating from the twelfth century, and Flemish settlers went there during the reigns of James I. and Elizabeth. In 1648 C. stubbornly resisted Fair-

to commerce, and did all that he could to increase the manufactures of the country instead of importing manufactured goods from abroad. The lines on which he worked, however, were exceedingly narrow, and did not make for progress. The inspection as to quality and measure of articles was most rigid, and the protective tariffs hampered the trade considerably. Credit is due to C., for his reconstruction of the Fr. navy. He not only increased the number of men and ships, but also reconstructed Toulon and Rochefort, and fortified Dunkirk, Brest, and Havre. He turned his attention also to learning and art, being the founder of the Academy of Science and of the Observatory, the re-organiser of the Academy of Architecture and of the Botanical Gardens, and he encouraged scholars and artists from all parts of Europe. He had public buildings and monuments set up in Paris, and added pictures to the Louvre. He experienced great difficulties from Louvois, his rival, who had control of the war department. Peace was necessary to C. so that his reforms might be effectual, and in his later days he carried on a constant struggle to cut down the king's extravagances to this end. Louis XIV., however, transferred his favour to Louvois, and C.'s influence gradually declined till he died, stricken with a fever which had attacked him at intervals for several years before his death.

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Colburn, Zerah (1804-40), a mathematical prodigy, b. in Vermont, U.S.A. In his earliest years he displayed such extraordinary powers of rapid calculation that from 1810 he was publicly exhibited by his father, and came to Great Britain and France. He studied from 1816 to 1819 at Westminster School at the expense of the Earl of Bristol. On the death of his father he returned to America, and was from 1825 Pro-

fessor of Languages in Norwich University, Vermont.

Colby, Frank Moore (1865-1925), American editor, b. in Washington, D.C.; son of Stoddard Benham C. Graduated at Columbia Univ., 1888. Held appointments in connection with history and economics in Columbia Univ. and Amherst Coll.; and was Professor of economics at New York Univ. 1895-1900. On the editorial staff of *Johnson's Cyclopedia* and *Nelson's Encyclopedia*. Edited *International Cyclopedia*, 1898 ed., and *International Year-Book*, 1898-1902. Edited *New International Encyclopedia* from 1900; revision 1913-16, and supplement 1923-24. Also *New International Year-Book* from 1907. He wrote: *Outlines of General History*, 1900; *Imaginary Obligations*, 1904; *Constrained Attitudes*, 1910; and *The Margin of Hesitation*, 1921; *Essays*, 1924. D. in New York, March 3, 1925.

Colby, Thomas Frederick (1784-1852), a British major-general, who was connected with the Ordnance Survey, of which he became director. See Portlock's *Memoirs of General Colby*, 1869.

Colchagua, a prov. in Chile from the Cordilleras to the Pacific Ocean. Its capital is San Fernando (pop. 10,100). The principal crops are cereals; wine and cattle are produced. Pop. (1928) 303,263. Area 3856 sq. m.

Colchester, a municipal bor. in county Essex, on the R. Colne, about 52 m. N.E. of London. It is one of the most interesting and one of the oldest towns of England. It is built on a height, and is the site of the anct. town of Camalodunum, one of the first Rom. colonies in Britain, and remains of the old Rom. walls are still to be found. There are also in C. remains of a Norman castle with tremendously thick walls, and the ruins of St. Botolph's Priory, both of which are full of interest. The Archaeological Museum and the restored gateway of a Benedictine monastery are other points of interest in this town. Among modern buildings may be mentioned the town hall, free library, county hospital, the barracks, the grammar school, and a university extension college. C. does a large trade in oysters, and is an important market for corn, being the centre of an agricultural district. It also manufactures boots and shoes. The town has been granted various charters from time to time, the first dating from the twelfth century, and Flemish settlers went there during the reigns of James I. and Elizabeth. In 1648 C. stubbornly resisted Fair-

fax, but had at length to give in. Two shocks of earthquake did considerable damage in 1881. A technical college was erected in 1911-12. Of recent years the tn. has become famous for its nurseries and rose gardens. In 1923 a memorial was erected to the men of C. who gave their lives in the Great War, Pop. 43,393.

Colchicum, a genus of Liliaceæ, containing over two dozen plants, which grow wild in Europe, Asia, and Africa. In Britain it is represented by the well-known *C. autumnale*, the meadow saffron or autumn crocus. The large pale purple flowers spring up in the autumn without any leaves, and expand with their orifice, together with the anthers and stigmas, just above the surface of the soil, while the tubular part, with the ovary and filaments, remains below ground and is thus protected from cold. The ovary becomes mature before the stamens, and pollination is effected by means of bees. In the springtime the foliage makes its appearance in the form of an erect tuft of broad, oblong, shining, sheathing leaves and the capsular fruit is elevated above the soil by its lengthened footstalk. The corm of the *C.* is irregularly egg-shaped, and covered with a dry, brittle, brown skin; in size it compares with a hazel-nut or walnut, and it consists of a white fleshy succulent substance. When fresh it has a nauseous, radish-like odour, when dried there is no odour; the taste is sweetish-bitter, leaving an acrid sensation in the throat. Both corms and seeds abound in a stimulating, deleterious principle, and large quantities are annually consumed in the manufacture of Eau Médicinale and other medicinal preparations. The *C.* acts as a diuretic and purgative, and when given in large doses is poisonous. It is most used in cases of dropsy, gout, and rheumatism.

Colchis, in anct. geography, was a country in Asia, situated between the Caucasus on the N., Iberia on the E., Armenia on the S., Pontus on the S.W., and the Euxine on the W. It was noted in Gk. mythology as the home of all sorcery, the land of Medea and the Golden Fleece. Its inhabitants were from earliest times engaged in the linen manufacture. The modern prov. of Mingrelia and a part of Abasia correspond with the ancient Colchis.

Cold (*Coryza*), an inflammation of the mucous membrane of the nose by which the secretion of mucous fluid is increased. The condition of the person is made worse by the chilliness which accompanies the ailment and

the general feeling of depression and feverishness. It is caused generally by stopping in a cold draught, and is a very common ailment, especially with people who spend some of their time in warm rooms and then go out in the cold. The best cure is a day in bed and the inducement of sweating by hot drinks or spirits of nitre. The feet may be bathed in hot mustard and water, and ammoniated tincture of quinine generally has the effect of banishing the cold. It should be stopped before passing down on to the chest, as inflammation of the bronchial tubes is dangerous. Those liable to constant colds should have plenty of outdoor exercise to brace up the system.

Cold Cream, or Rose-water Ointment, a cooling dressing for the skin. It may be prepared by melting together 125 gm. of spermaceti, 120 gm. of white wax, 560 gm. of expressed oil of almonds, and then mixing in 190 gm. of stronger rose-water. A few grammes of sodium-borate should be dissolved in the rose-water unless some other metallic salt of remedial properties is desired. The ointment constitutes a soothing application for chapped face and hands, abrasions, etc.

Colden, Cadwallader (1688-1776), was a Scot and a member of the medical profession. He went to America and practised medicine there, first in Pennsylvania and later in New York, and in 1761 he was made Lieutenant-Governor of that city. His chief works are: *History of the Five Indian Nations depending on the Province of New York in America*, 1727; and *An Explication of the First Causes of Action in Matter and of the Cause of Gravitation*, 1745.

Cold Harbor, a vil. of Hanover co., Virginia, U.S.A., 9 m. from Richmond, 2 m. from Chickahominy R. The Battle of Gaines's Mill was fought near by (1862), the Federals, under McClellan, being defeated by the Confederates under Lee. There was another battle fought between Generals Grant and Lee, 1864, considered indecisive, though the advantage was on General Lee's side.

Coldingham, a par. and vil. of Berwickshire, Scotland, 2½ m. from Eyemouth, 1½ m. from C. Bay. It has the remains of a famous priory, founded in 1098 by Edgar of Scotland. Fast Castle, the Wolf's Crag of Scott's *Bride of Lammermoor*, is about 2 m. off. C. is 2 m. from St. Abb's Head, 3 m. from Reston junction. Pop. par. 2830, vil. 495.

Cold Storage, see REFRIGERATION.

Coldstream (formerly Lennel, Lein-hall), a par. and burgh of Berwickshire, Scotland, 13 m. from Berwick,

on the R. Tweed and the L.N.E. Rly. Smeaton's five-arched bridge (1763-66) crosses the river, and near by is the famous ford of the Tweed, often crossed by Scotch and English armies. It was once, like Gretna Green, a refuge for runaway couples. Pop. burgh 1295, par. 2013.

Coldstream Guards, a British regiment in the foot-guards, forming part of the Household Brigade. It is the second regiment in age of the British army, the oldest being the Royal Scots. The Coldstream Guards were known first as Monk's Regiment, from General Monk, who founded the regiment in 1660. They definitely received their name when given to Charles II. to form part of his household brigade. During the reigns of Charles II. and James II. detachments of the regiment served in Flanders, at Tangiers and in Virginia, and under William III. it served at the siege of Namur, 1695. Some companies helped to hold Gibraltar in 1704-5 after its capture by Rooke. It served under Marlborough at Oudenarde and Malplaquet, under George II. at Dettingen, and under Abercrombie in Egypt in 1801. A string of battle honours for the Peninsula and Waterloo testify to its service under the great Duke of Wellington. It next saw service in the Crimea 1854-56, this being followed by the Egyptian campaign of 1882 and Suakin in 1885, and then the Boer War of 1899-1902. During the Great War it served with great distinction and gallantly upheld its proud motto, 'nulli secundus,' seven V.Cs. being won. Five battalions served at various periods in France and Flanders, notably at Mons (1914), Zandvoorde near Ypres (1914), Neuve Chapelle (1915), and in the later Battles of Ypres, 1917. King George V. is Colonel-in-Chief of the regiment. The C. G. can be distinguished from other Guards by the white band round their hats and by the buttons on their tunics being grouped in pairs.

Coldwater, cap. of Branch co., Michigan, U.S.A., on Lake Shore and Michigan Southern Railway, 55 m. from Adrian and 103 m. from Detroit. It contains a court-house, high-school, and state public school, and manufactures leather, furniture, Portland cement, liniment, and agricultural implements. A river of the same name enters St. Joseph R., 12 m. from the town, which stands on it. Pop. 6735.

Cold Wave, a sudden and general fall of temperature, usually following a winter storm and caused by a cool wind blowing towards the equator.

It generally lasts only for two or three days, and is common in U.S.A. In the eastern United States C. Ws. from the northern plains often cause a fall of 18° F. or more, bringing the temperature below freezing-point. They cross the border between Lake Superior and the Rockies.

Cole, George Vicat (1833-93), an Eng. landscape painter, especially of Surrey and Thames scenes, he was b. at Portsmouth, and from 1853 contributed frequently to the Royal Academy exhibitions. He was elected R.A. in 1880. 'The Pool of London,' which, however, is not a characteristic specimen of his art, is in the Tate Gallery, London. See *Life* by Chignell.

Cole, Sir Henry (1808-82), an English official, art critic, and editor, b. at Bath, and educated at Christ's Hospital. Appointed assistant keeper of the records, he helped to establish the Records Office. Did valuable service in promoting art exhibitions, especially the Great Exhibition (1851). He was a founder of South Kensington Museum and later its director. He was also one of the founders of the National Training School, afterwards reorganised as the Royal College of Music, 1882. See *Autobiography*, 1884.

Cole, Thomas (1801-48), a noted American landscape painter. He went from England to the U.S.A., 1819; from Ohio to New York, 1825. He travelled to London, Florence, and Rome between 1829 and 1832. He aimed chiefly at historical or allegorical landscapes (for examples see New York Historical Society's rooms). Among his works are: 'Views of the Catskills and White Mountains,' 'The Voyage of Life' (four pictures), 'The Course of Empire,' 'View of Mount Etna taken from Taormina,' and 'Kenilworth Castle.'

Cole, Timothy, an American wood engraver, b. in London, England, in 1852. In 1875 he began to work for the *Century Magazine* (then *Scribner's*). His work attracted widespread attention, and he was sent to Europe to make engravings after the old masters, which met with great success. He received medals at the Paris and St. Louis Exhibitions.

Colebrooke, Henry Thomas (1765-1837), a Sanskrit scholar, son of Sir George C., b. in London. His father, who was chairman of the East India Company, secured his son a post in the company's service. During his residence in India C. made a close study of Sanskrit, publishing several books in this language, among them his *Digest on Indian Law*, 1798. This led to his being appointed

president of the bench in Calcutta. He was also made a professor of Hindu law, and in return for this he wrote his Sanskrit grammar, published in 1805. He returned to London in 1814, and presented the India House with his Sanskrit manuscripts. In 1823 he helped to found the Royal Asiatic Society, and his writing ceased soon after this date. The latter years of his life were full of troubles, both pecuniary and family ones, and he died in his seventy-third year.

Colectomy, in surgery, the name given to the operation of removal of part of the colon or large intestine, and the consequent reuniting of the severed ends, so as to complete the circuit. This course is rendered necessary in cases of tumour or stricture in the part.

Coleford, a parish and mrkt. tn., 8 m. N.W. from Lydney, Gloucestershire, in the mining dist. of the Forest of Dean. The Town Hall was built in 1662. The Speech House, where the Verderers' Court is still held several times a year, is now an hotel. The court room possesses a musicians' gallery. Pop. urban dist. and par. 2781, eccles. dist. 4883.

Colenso, a vil. and railway station, Natal, S. Africa, 70 m. from Pietermaritzburg, on R. Tugela, which is here spanned by a bridge. It was the scene of Buller's unsuccessful attempt to cross the Tugela, Dec. 1899, during the Anglo-Boer War, 1899-1902. A great power station in connection with the electrical working of the Natal Rly. has been erected here. White pop. 550.

Colenso, John William (1814-83), Bishop of Natal and a celebrated mathematician, b. in Cornwall. He was educated at Cambridge, where he was second wrangler in 1836. From 1838 he was assistant master at Harrow, and from 1842 tutor at Cambridge. In 1846 he became rector of Fornsett St. Mary, Norfolk, and published mathematical textbooks on arithmetic, algebra, and plane trigonometry. His *Village Sermons* appeared in 1853, in which year he was appointed Bishop of Natal. He at once studied the Zulu language, and after a while prepared a grammar and dictionary, and translated part of the Prayer Book and Bible. In 1861 he published his *Translation of St. Paul's Epistle to the Romans, commented on from a Missionary Point of View*, in which he set forth his objection to the doctrine of eternal punishment. His next work, *The Pentateuch and the Book of Joshua Critically Examined* (1862, completed in 1879), made him the apostle of the higher criticism, and

provoked a storm of protest. His book was condemned by both Houses of Convocation as heretical (1864), and he was declared deposed from his see by Bishop Gray of Cape Town. The Privy Council, however, declared the deposition null and void. Bishop Gray then publicly excommunicated him, and in 1869 appointed Dr. Macrorie Bishop of Maritzburg, with authority over practically the same diocese. Later C. opposed the oppressive measures taken by the Boers and Cape officials against the Zulus, and the policy of Sir Bartle Frere during the Zulu War. He pleaded the cause of the chiefs Langalibalele and Cetewayo, and was regarded by the Zulus as their protector. Other works by him are: *Ten Weeks in Natal*, 1855; *The New Bible Commentary Literally Examined*, 1871-74; *Lectures on the Pentateuch and the Moabite Stone*, 1873; *Sermons*, 1873. See his *Life* by Sir G. W. Cox, 1888.

Coleoptera (Gk. *κολεός*, sheath, *πτερόν*, wing), an order of insects known familiarly to us as beetles. The species have four wings; the front pair, the elytra, are hard and leathery, and when at rest they fit together closely over the hind wings, and a straight suture lies between them; the hind pair are used in flight and are membranous. The mouthparts are biting and have mandibles, the lower lip is not divided along the middle. The metamorphosis is complete, the larva is a grub and develops into pupa which exhibits the external structure of the perfect insect. There are known to scientists about 150,000 species, of which over one-fifth belong to Britain. See **BEETLE**.

Colepeper (or **Culpeper**), John (d. 1660), an Eng. Royalist politician, first Lord C. He was a member of the Long Parliament (1640), siding against Strafford, supporting episcopacy, and opposing the Scottish demand for religious union. Privy Councillor and Chancellor of the Exchequer in 1642, he became Charles I.'s adviser, and fought for him at Edgehill. He accompanied the Prince (later Charles II.) to France (1646), and supported him ever after. See *Clarendon's Life*, and *History of the Rebellion*.

Coleraine, a par. and tn. of Londonderry co., Ireland, on R. Bann, 4 m. from the sea. It is noted for linen manufactures, and has shirt and collar factories. There are also good salmon fisheries. Pop. 7785.

Coleridge, Derwent (1800-83), an author and educationist, son of Samuel Taylor C. He was ordained, and appointed master of Helston Grammar School, Cornwall, one of his pupils being Charles Kingsley.

Here he pub. his largest work. *The Scriptural Character of the English Church*. C. was appointed first principal of St. Mark's College, Chelsea (1841), and did much to advance elementary education.

Coleridge, Hartley (1796-1849), son of Samuel Taylor C., was b. at Clevedon, Somersetshire. He early showed uncommon gifts and a temperament still more remarkable. He is the subject of two passages in his father's poems, *The Nightingale* and *Frost at Midnight*, and of an exquisite but painfully prophetic address from Wordsworth, who was his lifelong friend. After the separation of his parents, he was brought up in Southey's family at Greta Hall, being educated chiefly at Ambleside, where he was judged of sufficient intellectual promise to justify a university career. Urged by Southey, his well-to-do relatives sent him to Oxford. Intensely sensitive, impatient of control, shy and awkward, of a somewhat bizarre appearance, and infirm of will, Hartley got into trouble with the college authorities, and lost an Oriel fellowship through intemperance. He received a gift of £300 from the college, but the blow was intolerable, and left him for the rest of his life despondent, self-reproachful, and lacking in concentration. After two ineffectual years in London, Hartley returned to the Lake country, where he made two widely separated attempts at school-teaching. In the interval (c. 1830) he lived for some time at Leeds in the family of F. E. Bingley, a publisher, with whom, according to a contract, he produced a biographical work on *The Worthies of Yorkshire and Lancashire* (1836), earlier known as *Biographia Borealis*. He is, however, best known for his verse, which, if lacking in power, is singularly fine in mood and happy in expression. His sonnets are among the most perfect in the language. From 1838 Hartley lived at Grasmere, spending his time in study, reverie, and aimless wandering about the countryside, where he became an even more familiar figure than Wordsworth. His chief literary effort was an edition of Massinger and Ford (1840), including valuable biographies of the dramatists. He died of bronchitis, and was buried in the place chosen for him by Wordsworth, who was laid beside him a year later. Four volumes of his prose and poetry were edited by his brother Derwent (1851). As a critic Hartley is delicate and suggestive; as an essayist quaintly humorous, resembling Charles Lamb; and in conversational powers, according to tradition, second only to his father. See *Memoir*, by Derwent Coleridge;

Letters, etc., of S. T. Coleridge; *Journals and Letters of Caroline Fox, Fraser's Magazine*, vol. xliii.; *Macmillan's Magazine*, vol. xii.

Coleridge, Herbert (1830-61), a philologist, son of Henry Nelson and Sara C., was b. at Hampstead. In 1853 he began practising as a chancery barrister at Lincoln's Inn. His leisure hours he devoted to philological studies—Sanskrit, the northern tongues, and particularly the Icelandic language and literature. In 1857 he was elected a member of the Philological Society, to which he contributed two papers. The society was planning a supplement to the standard dictionaries of Johnson and Richardson, which soon developed into a scheme for a complete new Eng. dictionary. C. welcomed the plan with enthusiasm, and was appointed honorary secretary of a special committee 'formed for the purpose of collecting words and idioms hitherto unregistered.' His new duties, for which he was admirably fitted, practically constituted a general editorship of the work; the results of his researches are embodied in his *Glossarial Index to the Printed English Literature of the Thirteenth Century* (1859), which he describes as 'the foundation-stone' of the proposed dictionary. The scheme developed into the *New English Dictionary*, pub. by the Clarendon Press. His work was impeded by a failure of health which ended in consumption, but he continued sometimes to dictate notes, even when confined to his bed, during the last fortnight of his life.

Coleridge, Sir John Duke, first Baron Coleridge (1821-94), an Eng. jurist, son of Sir John Taylor C., was b. at Ottery St. Mary. Among his friends and contemporaries at Balliol were Archbishop Temple, Matthew Arnold, Arthur Clough, and Principal Shairp. He was called to the Bar in 1846, and soon gained practice, thanks to his musical voice, his eloquence (which earned him the nickname of 'silver-tongued C.'), and his powers of persuasion. He became recorder of Portsmouth, Q.C., and M.P. for Exeter, as a Liberal, from 1865 to 1873. He supported the Bill for the abolition of religious tests in the universities, and took part in the debates on the disestablishment of the Irish Church. He became Lord Chief Justice of England in 1880. His chief forensic triumph was in the famous Tichborne case, his speech for the defendant lasting twenty-three days. He wrote several papers on legal and literary subjects, and was the author of *in memoriam* notices of Matthew Arnold,

Principal Shairp, and others. See *Life and Correspondence of Lord Coleridge*, by E. H. Coleridge, 1904.

Coleridge, Samuel Taylor (1772-1834), Eng. poet and philosopher, was the son of the Rev. John C., vicar of Ottery St. Mary, Devon. He was only nine years old when his father died. A presentation to Christ's Hospital being obtained, he was a scholar there from 1782 to 1790, among his fellow-pupils being Charles Lamb, with whom he formed a life-long friendship. His love of the classics, especially Latin authors, attracted the notice and esteem of the head master, Dr. Boyer, but strangely enough, for nearly two years (about 1787-89) he was so engrossed with theological and metaphysical studies that, as he himself



SAMUEL TAYLOR COLERIDGE

says, 'everything else became insipid.' What is still more wonderful, he was relieved from this obsession by reading the sonnets of William Lisle Bowles, a very popular poet of his day. He acquired a considerable knowledge of Gk., and at Jesus College, Cambridge, which he entered in Feb. 1791, he won the Browne gold medal for a Gk. ode on the slave trade. But the fatal desultoriness which clouded his after-life showed itself thus early; his studies were irregular, and his rooms were the constant resort of friends who came to enjoy his conversation on all kinds of subjects, especially politics, in which he took intense interest. In 1793 a friend of his being expelled for Unitarianism and sedition, he too left the university, went to London, and being without resources enlisted in the 15th Dragoons under the name of Silas Tomkins Comberbatch, or Comberbacke. His

life as a recruit not being happy, he wrote one day on the stable-wall, 'Eheu, quam infortunii miserrimum est fuisse folicem!' (an adaptation from Boethius), which attracting the notice of an officer, led to inquiries. Friends obtained his discharge, and he returned to college. Visiting Oxford in June, he made the acquaintance of Southey, and the two evolved a delightful scheme of 'pantisocracy,' suggested by certain visionary Fr. philosophers. An ideal community was to be established on the banks of the Susquehanna, where brethren (and sisters) should dwell together in altruistic unity. But the colony was never founded. The two friends also collaborated in writing *The Fall of Robespierre*, a drama full of bombastic rhetoric, which was pub. about the time that C. finally left Cambridge, without a degree, towards the end of 1794. He next delivered in Bristol a course of political lectures, very Jacobinistic, and exceedingly virulent in their attacks on Pitt. He also wrote some poems, pub. by his friend Joseph, the brother of Amos Cottle, which, while containing some promise of future distinction in style, were often weak, conventional, and, as even their author allowed, turgid. In Oct. 1795 he married Miss Sara Fricker, whose sister Edith soon after became Mrs. Southey. He settled at Clevedon for a short time, but returned to Bristol. He was soon tired of Bristol, and went to Nether Stowey, where he met Wordsworth. C.'s marriage was an unfortunate one; his wife, though an excellent woman, being incapable of affording him intellectual and spiritual companionship, or the support which his moral weaknesses unhappily required. Projecting in 1796 a paper to be called *The Watchman*, which was to be a 'Herald of Truth,' and, to avoid the stamp-tax, was to appear every eighth day, C. started off on a tour to canvass for subscribers, preaching Unitarian sermons as he went, probably the strangest canvasser ever seen. His adventures, as told in his *Biographia Literaria*, are very amusing. *The Watchman* appeared, reached its tenth issue, and died a very natural death. Within the next two years he wrote the *Ancient Mariner*, the first part of *Christabel*, *Kubla Khan*, the *Ode to France*, in fact nearly all his finest poems. The first-mentioned was included in the *Lyrical Ballads*, a volume planned by the two poets in conjunction. C. was to deal with the supernatural, Wordsworth with subjects of everyday life; the *Ballads*, however, contained only a few pieces by the

former. The little volume was very ill received. Among other notices, the *Monthly Review* spoke of the *Ancient Mariner* as 'the strangest story of a cock and bull that we ever saw on paper.' It may be observed also that nearly twenty years later, when *Christabel* and *Kubla Khan* appeared, the same *Monthly Review* sagely remarked, 'That so much superior genius should be corrupted and debased by so much execrable taste must be a subject of sincere lamentation to every friend of poetry.' In 1798 Josiah and Thomas Wedgwood allowed him £150 per annum on condition that he should abandon preaching (he had accepted a Unitarian church in Shrewsbury) and devote his time to literature. His revolutionary enthusiasm had been disillusioned by the course of events in France, and, desirous of studying German philosophy, he spent about nine months at Ratzeburg and Göttingen, mastering the language, attending the lectures of Professor Blumenbach, and enjoying glorious hours of oratory and disputation among his fellow-students. Returning to England in 1800, he produced his excellent translation of *Wallenstein*. This sold so badly that the publishers, Messrs. Longman, disposed of the greater part of the edition as waste paper. During this year the *Morning Post*, which had already published his *Ode to France* and other pieces, engaged him to write a series of political articles. His articles appeared irregularly for two years, and then ceased. In the summer of 1800 he removed with his family to Greta Hall, Derwentwater, to be near Wordsworth, who had removed there. But he had been a frequent sufferer from rheumatism ever since boyhood, and the Westmorland climate affected him severely. In the spring of 1801 he began to take opium to relieve his pain; the habit rapidly increased, and, as De Quincey says, 'killed him as a poet.' He became restless and miserable, doing little work, but projecting grandiose schemes which all 'died in thinking,' such as that for an immense *Bibliotheca Britannica*, outlined by him in a letter to Southey, Aug. 1803. Friends came to his assistance; Southey took Greta Hall off his hands, Wedgwood, Wordsworth, and others were full of kindness, and in 1804 he received an invitation to Malta, where he had barely arrived when he was invited to become secretary to the Governor, Sir Alexander Ball, a position which he filled with the greatest capacity. This appointment he held for ten months, but his health did not improve, and he went on to

Naples and Rome. About midsummer 1806 he was perturbed by a rumour that he was in danger from emissaries of Bonaparte, on account of his anti-Napoleonic essays in the *Morning Post*. This story has been ridiculed, but it so impressed C. that he speedily departed from Leghorn, taking passage in an American ship. Arriving home safe, but miserably broken in mind and body, the record of his next ten years is a painful story of suffering, weakness, and vacillation. Estranged, though not altogether separated from his wife, he moved from place to place, sometimes alone, sometimes with his family. At Bridgewater in 1807 he met for the first time with De Quincey, who was so impressed that, through Cottle, he sent C. an anonymous gift of £300. A series of lectures begun in London, Feb. 1808, on 'Poetry and the Fine Arts,' was a failure, and it is not quite clear how he got through the year, but in 1809 he started a magazine, *The Friend*, under such impossible conditions that its life of eight months was remarkable for length rather than brevity, yet it contained some of C.'s finest prose. Some lectures on Shakespeare and other poets were, however, successful, and he wrote regularly for the *Courier* (1811-12), while his play *Remorse* was well received at Drury Lane. Nevertheless he was continually in pecuniary difficulties; opium had wrecked him morally and physically, and at one time his family was left almost entirely on the hands of Southey and a few other friends. It was now recognised that to give money to C. himself was merely to furnish him with the means of self-degradation. In 1814 he was taking two to three quarts of laudanum per week, or even more, and he had not sufficient will-power left to break off the habit. From 1816 to 1819 he lived with his friend Morgan at Caine, and finally was persuaded to put himself under the charge of a medical man, Mr. Gillman of Highgate, as a resident patient. He could not possibly have been in better hands; the fatal vice was gradually subdued, a warm attachment grew up between doctor and patient, and Mr. Gillman's house was C.'s haven of safety, which he seldom left during the rest of his life. While he was at Caine he prepared for the press *Christabel and other Poems*, written nearly twenty years before, and other works followed at intervals, including *Sibylline Leaves*, vol. ii. (vol. i. remained unwritten), *Lay Sermons*, and the *Biographia Literaria*. Fourteen literary lectures, delivered in 1818, were successful in

every way, and a remarkable account is given by Mr. Gillman of an extra one, delivered extemporarily, the subject, 'The Growth of the Individual Mind,' being given to the lecturer at the last moment. The discourse, says Mr. Gillman, was 'brilliant, eloquent, and logically consecutive,' a wonderful achievement. Unfortunately few of his lectures have been preserved except in the shape of rough notes, but these and his *Literary Remains* prove him to have been one of the greatest poetical, and especially Shakespearian, critics. *Aids to Reflection* appeared in 1805, *Church and State* in 1830, but his finest prose work, *Confessions of an Inquiring Spirit*, was pub. posthumously in 1840. As a philosopher he founded no school, yet exercised a great enervating and spiritualising influence on Eng. thought. As a poet he is *sui generis*. His *Ancient Mariner*, *Christabel*, and *Kubla Khan* stand by themselves, pictures from magic realms, lit with 'the light that never was on sea or land,' while the metrical theory on which *Christabel* is constructed was the beginning of a new era in Eng. poetry, helping perhaps more than any other single agent to break the fetters of eighteenth century 'correctness' and monotony. Heartily abused at first, it soon found disciples, among others Scott and Byron. C.'s prose style is brilliant and profound, but diffuse. Hazlitt has well characterised it in the following mischievous paragraph: 'One of his sentences winds its "forlorn way obscure" over the page like a patriarchal procession with camels laden, wreathed turbans, household wealth, the whole riches of the author's mind poured out upon the barren waste of his subject. The palm-tree spreads its sterile branches overhead, and the land of promise is seen in the distance.' As a conversationalist C. was unrivalled, fascinating all who met him. In 1797, Dorothy Wordsworth in describing him speaks of the plainness of his features, but adds, 'If you hear him speak for five minutes you think no more of them.' And even in his decrepitude Carlyle speaks of him as 'the most surprising talker extant in this world.' See *Lives* by J. D. Campbell (the best), 1893; H. D. Traill, 1884; Pater's *Appreciation*; De Quincey and Hazlitt *passim*, and Cottle's *Reminiscences*.

Coleridge, Sara (1802-52), daughter of Samuel Taylor C., was b. at Greta Hall, near Keswick, where she lived under the care of Southey and in the frequent society of Wordsworth. She pub. an excellent translation of Dobrizhoffer's Latin *Account of*

the *Abitones*, an equestrian people of Paraguay, and also translated the *Loyal Servants*, memoirs of the Chevalier Bayard. Her *Pretty Lessons for Good Children* appeared in 1834, and *Phantasmion*, an imaginative fairy tale, in 1837. In 1843 her husband, Henry Nelson, died, and she continued his task of editing and annotating her father's works. She left a son and daughter, who published *Memoirs and Letters of Sara Coleridge*, 1873.

Coleridge-Taylor, Samuel (1875-1912), a musical composer of Anglo-African descent, b. in London. His father was a native of Sierra Leone, his mother an Englishwoman, and he was brought up under Eng. influences. He distinguished himself at the Royal College of Music, winning the composition scholarship in 1893, and studying under Villiers-Stanford till 1896. He organised a series of successful orchestral concerts at Croydon, and wrote for the Three Choirs festivals and the Birmingham and Leeds festivals. His works include *Hiawatha*, *The Blind Girl of Castel-Cruillé*, and *Meg Blane*; *The Atonement*, a sacred cantata; negro melodies for the piano, and many beautiful songs.

Coleroon River, the N. branch of the Cavery (Cauvery or Kâveri) R., India, near its delta. It enters the Bay of Bengal at Devicotta, 24 m. from Tranquebar. For some way it forms a boundary between the Madras districts of Tanjore and Trichinopoly.

Coles, Cowper Phipps (1819-70), an Eng. naval architect and officer, who served at Sebastopol with distinction, 1854, becoming captain, 1856. He invented shot-proof rafts of floating batteries, and was keenly interested in the construction of turreted ships. His claim to be the originator of the *Monitor* type of ironclads must be yielded to Ericsson and others. C. was drowned in the capsizing of the *Captain* in a gale off Finisterre.

Colesberg: (1) A dist. of N. Cape Colony. (2) Also capital of above, 57 m. from Middleburg, 142 m. from Bloemfontein, with eight churches and synagogues. It is high, dry, and a health resort, and has sulphur-springs. It was the scene of active operations in the Anglo-Boer War, 1899-1902. Pop. white 1063, native 1067.

Coleshill, a mkt. tn. and parish of Warwick, England, Tamworth div., 8 m. from Birmingham, on the L.M.S. Railway, and R. Cole. Pop. 3177.

Colet, John (d. 1519), Dean of St. Paul's, was probably b. in 1467. He was educated at Oxford, where he took his M.A. degree and had two

or three benefices conferred on him when he was quite young, as this was the custom for those destined for a clerical career. About 1493 he made a tour on the Continent, where he studied law and literature, and it is said became acquainted with Savonarola. In 1496 he returned to England, and was for a time resident in Oxford, where he lectured on St. Paul's epistles. In 1498 Erasmus was in Oxford, and he and C. then became friends, and in 1505 he was made Dean of St. Paul's, thus becoming acquainted with Sir Thomas More. In the same year he inherited a fortune from his father, and with some of this money he founded St. Paul's School. In 1514 he made a pilgrimage to Canterbury, and the next year preached in Westminster Abbey, when Wolsey was made cardinal. He died four years later, and was buried in St. Paul's. See Joseph Hirst Lupton, *Dean Colet, the Founder of St. Paul's: a Lecture*, 1887.

Colet, Louise (née Révoil) (1810-76), a Fr. poetess, novelist, and miscellaneous writer. In 1834 she married the musician, Hippolyte C. Her first volume of poems, *Fleurs du Midi*, appeared in 1836, and attracted considerable attention. On several occasions her poems were crowned by l'Académie Française. Mme. C. was intimate with Cousin, De Musset, Villemain, and Flaubert. Among her poems are: *Penserosa*, 1839; *Charlotte Corday et Madame Roland*, 1842; *Les Chants des Vaincus*, 1840; *Le Poème de la Femme*; *La Paysanne*, 1853; *La Religieuse*, 1856; *La Satire du Siècle*, 1868. Her prose works include: *La Jeunesse de Mirabeau*, 1841; *Les Cœurs Brisés*, 1843; *Folles et Saintes*, 1844; *Deux Femmes Célèbres*, 1846; *Lui, Roman Contemporain*, 1859 (biography disguised as fiction); *L'Italie des Italiens*, 1862-64; *Les Derniers Abbés*, 1868; *Les Dévotes du Grand Monde*, 1873. She also gained notoriety by being involved in various public controversies.

Colfax, Schuyler (1823-85), an American statesman, b. New York City, U.S.A., March 23. In his youth, he moved with his mother and stepfather to Indiana, where he began his political career by holding various minor state offices. In 1845 he founded the *St. Joseph Valley Register*, which newspaper he ran for eighteen years. He was originally a Whig in politics, but in 1854 founded what was afterwards to be the Republican party in Indiana, and was sent by the Republicans to Congress in 1855, remaining there for fourteen years, during the last six of which he was

speaker of the House of Representatives. In the stormy days after the Civil War, he belonged to the radical wing of the Republican party, which was all for stern measures such as Abraham Lincoln would never have approved. Thus, he was in favour of disfranchising those who had been prominent leaders in the defeated Confederacy. In 1868, when the Republicans nominated General U. S. Grant, the hero of the North, for President, C. was nominated for Vice-President. Grant and C. were elected. C. sought re-nomination for Vice-President in 1872, but was defeated. He retired under a cloud owing to accusations in connection with the Crédit Mobilier scandal. He d. almost forgotten in Mankato, Minnesota, Jan. 13. See *Life* by O. J. Hollister.

Colgate University, an American institution for the higher education of men. Founded in 1819 in Hamilton, New York, it was incorporated as Madison University in 1846, the leading trustees being Friend Humphrey, Seneca B. Burchard, and William Colgate. In 1890 the name was changed to Colgate University, on account of benefaction received from the Colgate family, and in 1893 Hamilton Theological Seminary was united to it. Enrolment of students is limited to 1000. The library contains about 110,000 volumes. An interesting account of the early days and of students is given in *The First Half-Century of Madison University* (1872).

Colic, a spasmodic or crampy affection of the muscular fibre coat of the intestines. The patient is subject to great pain, with intervals free from it, and at the same time there is obstinate constipation and sometimes vomiting. There is no inflammation or fever, and a peculiarity is that it is relieved by pressure on the abdomen, thus distinguishing it from inflammation of the bowels. The disease is most likely due to passive congestion, and is due directly to several causes. Indigestion is the most common cause, especially in children, and the eating of large quantities of indigestible food, such as raw green-stuff, generally may be found to have preceded the attack. Other causes are cold in the stomach due to insufficient warm woollen clothing on that part, and a particular variety known as 'painter's colic' is due to lead poisoning. The pain is very severe, and causes the patient to draw up his knees to the stomach, and the first care is to relieve this pain. The general method of palliation is by means of opiates, which are generally administered in large doses. Then the bowels must be evacuated, an obsti-

nate process that, by reason of the pain, the patient is unable to perform for himself.

Coligny, François de (D'Andelot), (1531-68), fourth son of Gaspard de C., Maréchal de Châtillon, and Louise de Montmorency (d. 1522). He, like his brothers Gaspard and Odet, adopted the Reformed faith, and was an ardent promoter of the *levées de boucliers* of 1560, 1562, and 1567. He was poisoned at Saintes, probably at the instigation of Catherine de' Medici. See *Nouvelle Biographie Générale*.

Coligny, Gaspard de (1519-72), a Fr. soldier and admiral, was the third son of Gaspard. In 1543 C. began his career by taking part in military affairs, and was wounded at Montmédy and Bains. In the following year he served in Italy and did distinguished service at Cerisoles. In 1547 he was appointed colonel-general of the infantry, a position of considerable importance in France, and while holding this office he carried out many reforms. In 1552 he was made admiral, and in 1557 he was captured at St. Quentin—which was besieged by the Spaniards—and was imprisoned in the fortress of L'Ecluse, but subsequently ransomed. During this time he began to embrace the doctrine of the Reformers, and constituted himself the champion of the Protestants, sending out colonies of Huguenots, one of them to Brazil. He then took up arms against the Guises, and fought at Dreux, St. Denis, Jarnac and Moncontour, in most of which battles he was defeated. In 1570 peace was signed at St. Germain, and C. returned to Court. He counselled King Charles IX. to lead an expedition against Spain, but the queen-mother feared that her prestige with Charles was declining owing to the favour shown to C., and contrived that the expedition should not be successful, the result of her intervention being the massacre of St. Bartholomew, Aug. 24, 1572. On this date C., who had been shot at two days before at the instigation of the queen-mother, but only slightly injured, was again the subject of an attack—this time at his house—and was slain by a German named Behme. See L. J. Delaborde, *Gaspard de Coligny, Amiral de France*, 1879-82.

Coligny, Odet de (c. 1517-71), second son of Gaspard, brother of François (d. 1569). He was created cardinal, 1533; Archbishop of Toulouse, 1534; and Bishop of Beauvais, 1535. He did not openly profess Protestant views till 1560, and even afterwards was still known as 'Le Cardinal de Châtillon.' In 1561 he abjured Catholicism, and was ex-

communicated by the Pope, 1563. C. was plenipotentiary of the Huguenots during the civil war of 1567-68, and was forced to flee to England to escape from Catherine de' Medici. He was poisoned, probably at her command, at Hampton Court, when intending to return to France, after the declaration of peace (St. Germain, 1570). See Brantôme, *Mémoires*; Michaud, *Biographie Universelle*, 1843-66; Marlet, *Le Cardinal de Châtillon*, 1883; Moreri, *Le Grand Dictionnaire Historique*, 1759.

Colima: (1) State of Mexico, bounded by Jalisco on the N., the Pacific Ocean on the S.W., and Michoacan on the E. The surface is mostly mountainous. Among its productions are sugar, maize, pulse, rice, tobacco, palm-oil, indigo, corn, cotton, and rich fruits. It exports much coffee, hides, and palm-leaf hats. There are salt deposits in the coast region, and ore deposits in the mountains. Area 2275 sq. m. Pop. about 91,750. (2) Cap. of above, 30 m. from Mazzanillo, the chief port, 145 m. from Guadalajara, in the valley watered by Colima It. It is a great commercial centre. Pop. 28,330. Also a volcano near by, 12,750 ft. (in eruption in 1869), and a snow mountain, 14,364 ft.

Colin, Alexander (1526-1612), a sculptor, was b. at Mechlin. Ferdinand I. commissioned him to help with a monument erected to Maximilian I. at Innsbrück, and the greater part of the work on this tomb was done by him. C. held the post of sculptor to the emperor, and in the church where Maximilian's tomb is are those of the Archduke Ferdinand and Bishop Jean Nas, both the work of this sculptor.

Coliseum, see COLOSSEUM.

Colitis, inflammation of the mucous membrane of the colon, which is that part of the large intestine extending from the cæcum to the rectum.

Coll, an is. forming a par. of the same name in Argyllshire, Scotland, one of the Inner Hebrides on the W. coast of Mull, 10 m. from Ardnamurchan Point. Length 12 m., breadth 1-4 m. It has several small bays and Arinangour harbour, and a wide reputation for its cheese. Pop. 400.

Colladon, Jean Daniel (1802-92), a Swiss engineer, b. at Geneva. He won the Grand Prix at the Academy of Science in Paris in 1827 with *Mémoire sur la compression des liquides et la vitesse du son dans l'eau*, and two years later received the professorship of mechanics at the School of Arts and Manufactures in that city. He invented a dynamometer which was adopted by the British Admiralty,

and discovered the action of compressed air in tunnelling in 1852. His most important work is *Mémoires des Savants Etrangers*, 1838.

Collapse, a moderately severe condition of shock (*q.v.*). A patient suffering from shock lies in a state of utter prostration. The face is pale and drawn, the body cold and clammy, the pulse is quick, but barely perceptible, and the breathing short and gasping, being at times suspended. It may result from any shock to the nervous system, causing an arrest of the heart's action, while it also precedes death in cases of cholera and other exhausting diseases. Cardiac stimulants such as strychnine are used, and artificial heat is supplied, in cases of this sort. Rectal injections of warm saline solution, or injection of blood or saline solution into a vein, are necessary in cases caused by hæmorrhage.

Collapse, Pulmonary, or Apneumatoxis, a term used to signify that condition when a portion of a lung ceases to expand and contain air with inspiration. It may be caused in two ways, either, as in the case of an effusion of fluid in pleurisy, by pressure being exerted on the outside of the lung, or, as in the case of a blocking of the bronchial tube by a tumour, by an obstruction preventing the access of air to the lung. Suffocation may be caused by this state, of course, and the chances of recovery largely depend upon the strength of the patient and the severity of the C. Ipecacuanha or other drugs are used to promote expectoration in order to remove the mucus blocking the way, together with, in many cases, stimulants such as aromatic spirits of ammonia.

Collatio, or Mosaicarum et Romanarum Legum Collatio, or Lex Dei, a compilation comparing the law of Moses and Rom. law in sixteen titles, probably dating from the sixth century A.D. Each title is headed thus by legal rules from the law of Moses, 'Moses dicit.' There follow, by way of comparison, rules of Roman law from the five Roman jurists, Papinian, Paulus, Gaius, Ulpian, and Modestinus (third century A.D.), and from the three compilations which preceded Justinian's *Corpus Juris Civilis* (sixth century A.D.), *Gregorianus Codex*, *Hermogenianus Codex*, and *Theodosianus Codex* (from the time of Constantine to that of Theodosius II., first pub. 438 A.D.). The C. is valuable for its extracts from the above sources. It is printed in Schulting's *Jurisprudentia Vetus Ante-Justiniana*, 1717. An edition by Blume appeared in the Bonn edition of the *Corpus*

Juris Ante-Justinianei, and a separate edition in 1833.

Colle, Raffaellino Da, an Italian painter b. at Colle near Borgo-San-Sepolero about 1490. He was a pupil of Raphael and then of Giulio Romano. He assisted Raphael in the decoration of the Vatican. In his school at San Sepolero, Gheradi, Vecchi and other artists received their training. Grace and conscientiousness characterise Colle's work.

Collect, a brief prayer, offered up for some special purpose or on some special day. The etymology of the word is uncertain, though it is evidently derived from Lat. *colligere*, to collect. One explanation is that the prayer collects or gathers up in a comprehensive form the petition of all the people assembled. Thus it was offered up before the whole congregation, *ad collectam*, and was distinguished from prayers offered up during mass, *ad missam*. Some argue, however, that the prayer was so called because it collected or gave a brief paraphrase of the teaching of the Epistle and Gospel, which it immediately preceded. The form of the C. is very simple. It begins with an invocation to God, contains one single petition, with special reference to the day or event celebrated, and closes in praise to Jesus Christ. The Cs. of the Common Prayer Book were composed at a very early date. Eight were added in 1661, and most of those for saints' days were written at the Reformation. Many are derived from the sacramentaries of St. Leo (A.D. 440-61), of St. Gelasius (492-6), and of Pope Gregory (590-604). The Cs. for Advent, Christmas Day, Ash Wednesday, and a few others, have been adapted from anct. prayers. Consult J. H. Blunt, *Annotated Book of Common Prayer*, 1885; Canon Bright, *Ancient Collects*, 1857; and a publication of the S.P.C.K. entitled *On the Collects*, 1862.

Collections at Churches. In Scotland up to 1845 the contributions made at parish churches formed the principal fund for the support of the poor. A proclamation of Aug. 29, 1693, ordained that one-half only of the sums collected at parish churches, and of the dues received by the kirk-session, should be paid over by them into the general fund for the relief of the poor. No directions were given as to the objects to which the remaining half was to be applied, but in practice it was used by the kirk-session for grants by way of temporary relief in cases of sudden distress and pending admission to the permanent roll of the poor. The courts also allowed as proper charges against the fund the session-clerk's salary and

the cost of a new tent for field-preachings. Collections received at dissenting meeting-houses did not form part of the poor's fund, but were at the sole disposal of the congregation by whom they were supplied. The collection of contributions at church doors was properly the province of the minister and elders; but when they neglected that duty, the heritors used to officiate in their stead. C. at C., eked out in a number of parishes by mortifications, and mortcloth dues, and by assessments on heritors, formed practically the sole fund for the maintenance of the poor down to the middle of the nineteenth century, when it broke down through the rise of large towns and the increase of religious dissent. Then came the Poor Law Act, 1845, which gave all parish councils certain powers for the relief of the poor, and although the system under that Act is not compulsorily imposed on Scottish parishes, it became almost universally adopted. In England at the present day collections at churches are made as they have been made for a great number of years by passing round a plate or bag. But, except in regard to the provisions as to the offertory, there have never existed any statutory or other legal provisions as to the destination of the sums so collected. By an Act passed in the twenty-seventh year of Henry VIII.'s reign, it was provided that money collected for the poor should be kept in the common coffer or box standing in the church of every parish; and Canon No. 84 enjoins on the churchwardens the duty of setting up a 'strong chest, with a hole in the upper part thereof, in a convenient place, to the intent the parishioners may put into it their alms for their poor neighbours.' The present rubric substitutes a basin to be provided by the parish. Alms collected at the offertory—which was anciently an oblation for the use of the priest and changed at the Reformation into alms for the poor—whether in churches or chapels, were, according to the rubric, at the disposal of the incumbent and churchwardens, who are to distribute the money to such pious and charitable uses as they think fit.

Collectivism, a word of modern origin, first used apparently by Bakunin to express the distinction between his tenets and those of Karl Marx, has since come to convey the same idea as Socialism, and is the theory that industry should be carried on with collective capital under the control of the community. See ANARCHISM and SOCIALISM.

Colle di Val d'Elsa, a tn. of Italy, in the prov. of Siena. It is situated on the Elsa, 22 m. S.S.W. of Florence. It is an episcopal see, and has a fine mediæval cathedral and a number of old palaces. In the new part of the town there are paper and glass factories. Pop. (commune) 10,100.

College, in Rom. law, an association of persons for a specific purpose, a body of colleagues. The C. corresponded roughly with our corporation; it had to be incorporated by some public authority, springing from either senate or emperor. Collegia might exist for purposes of trade (*cf.* gilds), for religious purposes (*e.g.* colleges of augurs, pontifices, etc.), or for political purposes (*e.g.* *tribunorum plebis collegia*). By Rom. law a C. must have at least three members. With us a C. is an incorporation or society of persons joined together generally for educational, literary, or scientific purposes, and frequently possessing peculiar privileges. Such are the Cs. of Oxford and Cambridge (see UNIVERSITIES), C. of Physicians, C. of Surgeons, Herald's C., etc. Educational Cs. seem to have grown out of the voluntary association of teachers and students at the university. They seem to have been more numerous and flourishing than anything we know now; we hear of 300 halls or societies at Oxford, and 30,000 students. Men of wealth and culture, especially the political bishops and Chancellors of England, obtained charters from the Crown for the incorporation of societies of scholars, and these gradually became the places of abode for students attending the university. Later the university and the C. became co-extensive; every member of the university had to belong to some C. or hall, and was obliged to matriculate in the university. The corporation consists of a head or master, fellows, and scholars. The governing body is the head and fellows. All ecclesiastical or educational corporations have a visitor, whose duty it is to see that the founder's statutes are obeyed, and to decide disputed cases, provided they do not come under the common laws of the country or have to do with trusts attached to the C. The visitorship usually resides in the founder and his heirs or in the crown. The fellowships, scholarships, etc., of Cs. are subject to various restrictions, which are gradually being abolished. Some of the public schools are Cs., and many secondary schools are so called. In Scotland and in America, the C. is not distinguished from the university, and we hear of Cs. granting degrees.

College de France, The, was founded

in Paris by Francis I., about 1520-45, in opposition to the scholasticism of the universities. Erasmus was asked to be its principal, but he refused. It was first known as the Collège de Trois Langues, because originally the teaching embraced only three languages—Gk., Hebrew, and Latin. The University of Paris has frequently tried to obtain control, but without success. Until the time of the Revolution it was regarded as a royal college. It is now under the control of the Minister of Public Instruction, but it is autonomous. There are no fees, no examinations, and no degrees nor diplomas. Scientific research work is particularly encouraged. Its famous professors have numbered Rollin, Saint-Hilaire, Laboulaye, and Gaston. At the present day there are over forty chairs, and every branch of learning is taught. Consult Goujet, *Le Collège Royal de France*, 1758; and Bouchon-Brandely, *Le Collège de France*, 1873.

College Point, formerly a post vil. of Queen's co., New York, on Long Is. Sound. Since 1898 it has been recognised as part of New York City.

Colleges, Training, see TRAINING COLLEGES.

Collegiate Church (from Lat. *collegium*, assembly), one to which is attached a body of clergy, differing from a cathedral in that it is not the seat of a bishop. It is supervised by the bishop of the diocese. There were many on the Continent before the Reformation, the most famous one being that of Aix-la-Chapelle. After the Reformation, nearly all of those in England were suppressed by Edward VI. Ripon and Manchester have since been constituted cathedrals for new dioceses. In Scotland the term is applied to a church which has two incumbents in the parish.

Collembola, the name given by Sir John Lubbock to the minute wingless insects known as spring-tails. Their chief characteristic is the power possessed by most of them of taking sudden leaps when alarmed, made possible by a curious apparatus on the under part of the body. See Sir J. Lubbock's *Monograph of the Collembola and Thysanura*, 1873.

Colleoni (or Coleone), Bartolomeo (1400-75), an Italian soldier, b. at the Castle of Solza, near Bergamo. In the war between the Milanese and Venetians his services were in great request by either side, and he fought for both. In 1446 he was imprisoned as a spy by Philip Visconti, Duke of Milan. In 1451 he definitely joined the Venetian army and became generalissimo of the Venetian state, when he showed his brilliant military

talents. Near the church of San Giovanni e Paolo in Venice there stands an equestrian statue to his memory, executed by Andrea del Verrocchio.

Colles, Abraham (1773-1843), a British surgeon, b. at Milmount, near Kilkenny, Ireland. He was appointed professor of anatomy and surgery in the Irish College of Surgeons (1804-36), and discovered what is known as C.'s fracture of the radius. He published several papers on medical and surgical subjects, including *The Use of Mercury in Venereal Complaints*, 1837.

Colle-Salvetti, a commune in Tuscany, Italy, 10 m. S.E. of Pisa. Pop. 10,750.

Collesano, a tn. of Sicily, 25 m. E.S.E. of Palermo. Jasper and agate are quarried. Pop. 7090.

Collet, Jakobine Camilla (née Wergeland) (1813-95), a Norwegian novelist, sister of the poet Henrik Wergeland. She was the chief exponent in Norway of the emancipation of women, and her writings deal largely with the suppression of a woman's personality in married life. Her novels give a realistic picture of Norwegian domestic life. Her first, *Amtmandens Døttre*, 1855, is perhaps the best. Others are, *I de lange Naetter*, 1863; *Sidste Blader*, 1868-72; *Mod Strømmen*, 1878-85, and *Skrifter*, 1892. Consult Clara Tschudi, *Tre Nutidskvinder*, 1894, and Alf Collet, *Camilla Collets livs historie*, 1911.

Colletta, Pietro (1775-1831), an Italian statesman and historian, b. at Naples. He took part in the rising of Ferdinand of Naples (1799), and served with distinction in the army of Joseph Bonaparte till 1806. In 1815 his troops suffered defeat from the Austrian army at Casalanza, but his services were retained. His great historical work, *Storia del Reame di Napoli dal 1734 sino al 1825* (1834) was translated into Eng. in 1858 by Horner. Consult the *Biography* by Capponi, 1846.

Colley, Sir George Pomeroy (1835-81), an Eng. military officer, who became border magistrate at the Cape (1857-58). In 1860 he was dispatched to China, and was present at the capture of the Taku forts. He then served in Ashanti, and for four years (1876-80) acted as private secretary to the Viceroy of India, Lord Lytton. He commanded in Natal, where he followed Sir Garnet Wolseley as Governor (1880). In the following year he was killed at Majuba Hill. His Life has been written by Sir W. Butler, 1899.

Collie, a sheep-dog used to protect and control flocks. The Scotch C. is

one of the most popular of breeds, on account of the affectionate faithfulness he exhibits towards his owner. Formerly he was used chiefly in Scotland and N. England purely as a sheep-dog. He has extraordinary intelligence and a somewhat snappy temper, which prove very useful in gathering together the sheep and in repelling interference from strangers. He is very keen-witted and a fast runner. During the middle of the last century he became popular as a domestic companion, and may now be seen in towns as frequently as on the mountain side. There are two kinds of Scotch Cs., rough and smooth haired. The chief points to be looked for are: A long head with a sharp nose; ears small and folded back at the tips, when in repose; eyes bright and dark, set obliquely somewhat close together; fore legs straight; hocks bent; feet strong and round. The rough-haired variety should have a very thick, soft under-coat, hanging from which a long and wiry outercoat; a full mane and deep, frill round the neck; fore-legs a little feathered; hind-legs smooth below the hocks; a long and bushy tail. The smooth-coated C. has no feathering on tail, ears, and legs; his coat is flat but thick. The average height for dogs is 22 to 24 in., for bitches, 21 in.; the average weight for dogs is from 50 to 65 lb., for bitches from 40 to 50 lb. The colour varies considerably, from black and tan, tan and white, sable and white to pure white. The Welsh bob-tailed C. has a long, shaggy, blue-grey coat, and stands 25 in. high. Its tail is cropped when young.

Collie, a tn. in coal-fields, 122 m. from Perth, W. Australia. Pop. 4500.

Collier, Arthur (1680-1732), an Eng. metaphysician, who wrote *Clavis Universalis, or a New Inquiry after Truth, being a demonstration of the Non-Existence and Impossibility of the External World*, 1713; *A Specimen of True Philosophy*, 1730; and *Logology*, 1732.

Collier, Sir George (1738-95), a British vice-admiral, b. in London. He entered the navy in 1751, and in ten years was promoted to the rank of commander. He was appointed senior officer at Halifax, Nova Scotia (1776-79), and, when commanding the *Rainbow*, captured the American frigate, the *Hancock* (1777). In 1779 he relieved Penobscot and did much damage to the American ships. He took part in the relief of Gibraltar, when he was successful in capturing the Spanish frigate, the *Leocadia* (1781).

Collier, Jeremy (1650-1726), an Eng. religious writer and indomit-

able assailant of the Government of his time. He was b. at Stow-cum-Quay, Cambridgeshire, educated at Caius College, and took orders in 1677. On leaving college he became rector of Ampton in Suffolk, and afterwards lecturer at Gray's Inn and preacher of the Rolls. He was an extreme high churchman, and at the Revolution refused to take the oaths to Government. For writing a pamphlet in defence of the dethroned monarch he was committed to prison, and again in 1692 for a series of pamphlets against William. He was released without trial, and again he returned to the charge, harassing the Government by violent pamphlets, and openly exulting at any reverse suffered by it. In 1696 he went so far as to pronounce absolution without confession on the scaffold at Tyburn to Friend and Parkyns, executed for plotting the murder of the king. To avoid recognising the authority of Government by giving bail, C. absconded when the matter was brought before the court. For this he was outlawed, and he remained under the ban for the rest of his life. He now gave himself up principally to literary work. He wrote *An Ecclesiastical History of Great Britain*, translated Moreri's *Historical and Geographical Dictionary*, issued essays upon many moral, religious, and political subjects, a volume of practical discourses, and a translation of Antoninus' *Meditations*. His famous treatise, *A Short View of the Profaneness and Immorality of the English Stage*, roused against him the violent opposition of the theatrical world, and led him into a long and triumphant controversy with Congreve and Vanbrugh. Lord Macaulay eulogises this treatise in these words: 'There is hardly any book of that time from which it would be possible to select specimens of writing so excellent and so various.' C. was a man of profound and extensive learning, of great ability, and honest, though somewhat bigoted. His persistent opposition to the Government probably alone stood in the way of his being raised to the highest ecclesiastical dignities.

Collier, John (1708-86), an Eng. poet and painter, b. at Urmston, near Manchester. In early life he was apprenticed to a Dutch weaver, but in 1729 obtained a position in a free school at Milnrow, near Rochdale, which he held till his death. He excelled in caricature-drawing and in rhyming satire. Under the name of 'Tim Bobbin,' he published *The Blackbird*, 1739; *View of the Lancashire Dialect*, 1746; *Truth in a Mask*, 1751; *The Fortune-Teller*, 1771; two

skits on Whitaker's *History of Manchester*, in collaboration with Colonel Townley (1771, 1773); and a volume of twenty-six humorous engravings, with rhyming descriptions, entitled *The Human Passions delineated*, 1772-73. Consult the Life by Fishwick prefaced to his works, 1895.

Collier, Hon. John, an English painter. He was b. in London Jan. 27, 1850, being the second son of Sir Robert Porret C., afterwards Lord Monkswell, and was educated at Eton. Thereafter, at Heidelberg, he was chiefly interested in duelling. He studied art at the Slade School and at Paris and Munich, and had some hints from Alma-Tadema and Millais. He has exhibited at the Academy since 1877, and obtained considerable fame and popularity through his 'story-telling' pictures—e.g.: 'The Last Voyage of Henry Hudson,' 1881; 'The Inquisition—waiting for the Accused,' 1891; 'A Glass of Wine with Cæsar Borgia,' 1893; 'Urban VI' (under the torture-chamber window), 1896; 'Trouble,' 1898; 'The Garden of Armida,' 1899; 'A Confession,' 1902; 'The Prodigal Daughter,' 1903; 'The Cheat,' 1905; 'Sentence of Death,' 1908; 'A Fallen Idol,' 1913; 'Mariage de Convenience,' 1907. But his best work is in portraiture—e.g.: Rudyard Kipling, 1891; Prof. Huxley, 1891; Prof. Burdon Sanderson, 1894; The Duke of York (i.e. Geo. V.), 1901; Prof. E. Ray Lankester, 1904; Lord Alverstone, 1912. He has published works on the art of painting, including *A Manual of Oil Painting*, and *The Art of Portrait Painting*. He is an agnostic, and an active member of the Rationalist Press Association.

Collier, John Payne (1789-1883), an Eng. Shakespearian critic and commentator, b. in London. He was called to the Bar in 1829. His first publication, *The Poetical Decameron*, appeared in 1820; in 1825-27 he prepared a new edition of Dodsley's *Old Plays*, to which he added six which had not hitherto been in print. Henceforward he devoted his life to the study of Elizabethan literature, but gave most of his time to the plays of Shakespeare. He issued a *History of English Dramatic Poetry to the Time of Shakespeare*, and *Annals of the Stage to the Restoration*, 1831; *New Facts, New Particulars, and Further Particulars on Shakespeare*, in three volumes, 1835-39; an edition of the poet in eight volumes, 1842-44; and *Memoirs of Actors in the Plays of Shakespeare*, 1846. C. was one of the founders of the Shakespeare and Camden Societies, for which he edited many old texts. In 1852 he pub.

a volume, entitled *Notes and Emendations to the Text of Shakespeare's Plays*, which caused a great sensation among Eng. and Ger. scholars. He possessed a MS. copy of the 1632 folio, since known as the Perkins' folio, because on it is inscribed 'Tho. Perkins his Booke.' C. asserted that the notes written in the margin of his folio dated from the middle of the seventeenth century, and adopted them as emendations of the text. It was afterwards proved that the marginal notes were forgeries. These and other forgeries of his are carefully enumerated in Sir Sidney Lee's *Life of Shakespeare* (appendix i.). C. also wrote a *Bibliographical and Critical Account of the Rarest Books in the English Language*, 1865; *An Old Man's Diary Forty Years Ago*, 1871-72; and edited seventeenth and eighteenth century *Reprints*, and the works of Thomas Heywood and Edmund Spenser.

Colliery, see COAL-MINING.

Collimation, the adjustment of a telescope in such a manner that the line of sight (optical axis) is exactly perpendicular to the axis of movement. One common method of obtaining C. is by adjusting the telescope in its ordinary position, and when it is reversed in the bearings the angular discrepancy is noted, and one half of that gives the error of collimation. A Collimator is an auxiliary telescope used to detect and correct errors in collimation. It is fitted with cross wires and mounted before the transit instrument. When these threads coincide with the axes of the telescope then it is collimated both vertically and horizontally. In determining the nadir point, a telescope may be its own C., if it is fitted with a collimating eye-piece.

Collings, Jesse (1831-1920), politician, was until 1879 head of the firm of Collings and Wallis, merchants, Birmingham. Elected as member for Ipswich, 1880. It was C.'s Small Holdings amendment to the Address—an amendment involving the Radical scheme for 'three acres and a cow,' which secured in 1886 the downfall of Lord Salisbury's Ministry. In the same year he first represented Bordesley (Birmingham) in the House, and for a short period acted as parliamentary secretary to Joseph Chamberlain, President of the Local Government Board. Besides founding the Rural Labourers' League and the National Education League, he played an active part in the municipal life of Birmingham. D. at Edgbaston Nov. 20.

Collingswood, a borough 3 m. from Camden, New Jersey, U.S.A., a residential town, pop. 8714.

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Collingwood : (1) A city in Bourke co., Victoria, Australia, situated on the R. Yarra-Yarra, and forming a north-eastern suburb of Melbourne. Pop. 34,239. (2) A lake port of Ontario, Canada, situated in Simcoe co., on the S. shore of the Georgian Bay, Lake Huron, 72 m. N.W. of Toronto. It is a terminus for two lines of steamers from Huron to Lake Superior ports, and possesses a large dry-dock and shipyard. An important trade in grain and lumber is carried on, and there are numerous factories. Pop. 8000.

Collingwood, Cuthbert, Admiral Lord (1750-1810), *b.* at Newcastle. He went to sea at eleven years old, became lieutenant in 1774, was appointed captain of the *Badger* in 1779, and soon after post-captain of the *Hinchinbroke*. He served under his friend Lord Nelson in the Spanish main in 1780, and again in the W. Indies in 1783-86. In 1793 he was captain of Rear-Admiral Bowyer's flagship the *Prince*. He was actively engaged under Howe at the great battle of June 1, 1794, and under Jervis off Cape St. Vincent on Feb. 14, 1797. His extraordinary valour and judgment in these two engagements caused him to be held in great honour by the whole fleet. In 1799 he was made vice-admiral, and from 1803 he was constantly on active service. At Trafalgar he was second in command, his vessel, the *Royal Sovereign*, was the first engaged, and to him much of the honour of the victory was due. On Nelson's death he took supreme command of the fleet and was raised to the peerage. For three years his fleet maintained a blockade of Cadiz, the Straits of Gibraltar, and the adjoining coast. To the end of his noble life he remained, although worn out, at his post, his country refusing to release him.

Collins, Anthony (1676-1729), a writer and controversialist whose opinions roused violent opposition from the orthodox of his time. *Priestcraft in Perfection* attacks the 20th Article of the Church of England, *A Discourse on Freethinking* attempts to prove the uncertainty of the principles of the clergy. The *Discourse* gave rise to so much excitement that C. found it expedient to take a trip to Holland. On his return he became, not without hostile demonstrations, J.P. and deputy-lieutenant of the county of Essex.

Collins, Arthur Pelham, Eng. theatrical manager, *b.* in London, 1863; son of H. H. Collins, a city architect. Educ. at City of London School, and in Hanover. Worked first in his father's office; in 1881

apprenticed to Henry Emden, scenic artist at Drury Lane Theatre. Became stage-manager, and produced the dramas and pantomimes there, 1887-96. On death of Sir Augustus Harris, he obtained lease of the theatre, and became managing director of the limited company formed to work it. Produced all the dramas and pantomimes 1897-1924.

Collins, Charles Allston (1828-73), an Eng. painter and author, second son of William C. the painter. He married Kate, the younger daughter of the novelist Dickens, in 1860. In early life he showed much talent in his painting of Pre-Raphaelite pictures. In 1860 he pub. the *Eye-witness*, in 1862 *A Cruise on Wheels*, and various other works.

Collins, John (1624-83), an eminent mathematician and accountant who came to be called 'the English Mercennus' on account of his extensive knowledge of the latest improvements in mathematics and general science, which he did much to diffuse by his books.

Collins, John Churton (1848-1908), an Eng. literary critic, who for many years was a prominent university extension lecturer, and contributed regularly to the principal reviews. His first book was a study of Sir Joshua Reynolds, 1874, and later his works included: *Bolingbroke*, and *Voltaire in England*, 1886; *Study of English Literature*, 1891; *Illustrations of Tennyson*, 1891; *Study of Jonathan Swift*, 1893; *Ephemera Critica*, 1901; and *Studies in Shakespeare*, 1904. In 1901 he edited Dryden's *Satires*, and also published editions of *Cyril Tourneur's Plays and Poems*, 1878, etc. Posthumous essay, edited by his son, 1912.

Collins, Michael (1890-1922), Irish revolutionary general, *b.* at Woodfield, Clonakilty, co. Cork, youngest son of the family of eight of John Collins, farmer—whose wife was forty years his junior. Educ. at a National School, entered English Civil Service at fifteen—was in London G.P.O. and afterwards in a London accountant's. On Easter Monday, 1916, he took part in the seizure of Dublin General Post Office. The same week he was captured. He was sent to Stafford Jail, and afterwards to Frongoch Camp, Merioneth—whence he was released before Christmas, 1916. In 1918 he was imprisoned in Sligo Jail for a seditious utterance; and elected for Co. Cork, to Dail Eireann, which proclaimed an Irish Republic. The President, De Valera, escaped from Lincoln Jail in March 1919, Collins assisting. Collins was Minister of Finance; also head of the Intelligence

Dept. of the Army. By 1920 an offer of a reward of £10,000 was out for his arrest, for he was noted for the fearlessness with which he went about and escaped capture. Principally through his influence, in 1921, the British terms for an Irish Free State were accepted by the Dail. De Valera's successor Griffith dying suddenly, Collins became head of the Irish Gov.; and he entered into discussions with Protestant Ulster while fighting republican irreconcilables in the S. By the latter he was ambushed and shot dead while motoring from Skibbereen to Cork, Aug. 22, 1922.

Collins, William (1721-59), a minor poet whose odes had a certain vogue in his time, but which are now almost forgotten. He was *b.* at Chichester, where his father was a hatter and an alderman. He entered Winchester School as a foundation scholar, and remained there seven years, afterwards going to Oxford. While at the university he pub. *Persian Eclogues*. These poems were not a success, though they are appreciated by some for a certain richness of imagination and beauty of rhythm. The advice of some of his friends, together with his own vanity and ambition, led him to abandon his Oxford career and try his fortune with his pen in London. He lived here in poverty, misery, and debt for some years, his indolence and irresolution standing in the way of his carrying out ambitious plans. In 1746 he pub. *Odes Descriptive and Allegorical*, but he later repaid his publisher the price he had received for them, and had burned the many unsold copies. His poverty came to an end with a legacy of £2000 from an uncle, but a life of privation coupled with drinking habits had brought on a nervous disease which ended in insanity.

Collins, William (1788-1847), an Eng. landscape and figure painter, *b.* in London. In 1807 he became a student at the Royal Academy, and in 1820 was elected R.A. His picture of the 'Young Fifer' was sold for eighty guineas in 1811, and his 'Sale of the Pet Lamb,' the following year, realised 140 guineas. His finest work is in his two pictures entitled 'As Happy as a King,' 1834, and 'Early Morning,' 1846.

Collins, William Wilkie (1824-89), an Eng. novelist, was the eldest son of William Collins, R.A., and received the name Wilkie, by which he was commonly known, from the great contemporary painter, Sir David Wilkie. At an impressionable period (from the age of twelve to fifteen) he lived with his parents in Italy, a period from which he clearly drew his

inspiration for *Antonina* (1850), his earliest novel. C. wrote this book under the spell of Bulwer Lytton's romances. Fortunately, *Antonina* so delighted his father that Wilkie was allowed to desert the tea business, to which he had been articled, in order to study law. Still, his attainment of a barrister's degree in 1851 did not encourage him to adopt a legal career. For in 1848 he pub. a diffuse but worthy biography of his father, who had died the preceding year, and his meeting with Charles Dickens in 1851, a meeting destined to sow a lifelong friendship between the two, finally confirmed him in his determination to pursue a literary career. C., who always strove—and with success—to give a dramatic or rather melodramatic setting to his stories, used often to take part in the theatricals organised by Dickens at Tavistock House, and it was here that his dramatised version of one of his own stories, *The Frozen Deep*, was first performed (1857). Spurred on by his friend's generous appreciation of his novel *Hide and Seek* (1854), C. gladly contributed to Dickens' periodical, *Household Words*, and later to *All the Year Round*, with which the former became incorporated. Thus in the first, *After Dark* (1856) and *The Dead Secret* (1857) both ran as serials, a style of publication eminently suited to C.'s unique gift of riveting attention and sustaining interest, whilst his most successful ventures, *The Woman in White* (1860), *No Name* (1862), and *The Moonstone* (1868), all appeared in *All the Year Round*. Count Fosco in *The Woman in White* is almost inimitable, and unlike the almost burlesque characters of John Betteridge and Captain Wragge, is singularly free from that exaggeration of merit and defect which mars so many of his figures. Other of his publications were: *Armada* (1866) in the *Cornhill*, *The New Magdalen* (1873) in *Temple Bar*, and some dramatised versions of his most popular stories. Failing health and opium-eating probably account for the poverty of talent displayed in his later works. A good deal of adverse criticism has been meted out to his method of telling his tale by means of diaries, documents, and personal narratives, a method resorted to in order to give his fiction the guise of truth.

Collinson, Peter (1694-1768), an Eng. naturalist and botanist, *b.* near Windermere. He established a botanic garden at Mill Hill, N. London, and introduced foreign methods and products into the Eng. system of agriculture for its benefit. *Hortus*

Collinsoniana, an article printed privately by L. Dillwyn, was pub. in 1843.

Collinson, Sir Richard (1811–83), an English admiral, who sailed in the *Enterprise* for the relief of Sir John Franklin. He was not successful, but in spite of this fact his addition to geographical knowledge was considerable. He edited *Three Voyages of Martin Frobisher* for the Hakluyt Society, 1867.

Collinsville, a tn. 2 m. from St. Louis, Illinois, U.S.A. Produces coal and zinc. Pop. 9235.

Collio, a vil. of Italy in the prov. of Brescia, situated on the R. Mella, 14 m. N.N.E. by rail of Brescia. There are iron mines in the vicinity. Pop. 2635.

Collioure (Cauco Illiberis), a seaport tn. of France in the dept. of Pyrénées-Orientales on the Mediterranean, 15 m. from Perpignan. It is N. of Port Vendres, was defended by forts till 1866, and has fishing and coasting trade. Pop. 3100.

Collision of Ships. Owing to the danger of ships following the same or intersecting courses running into each other, 'rules of the road,' covering the conduct of neighbouring vessels in varying circumstances, have been adopted by all civilised nations. The most important of these are as follow: Any vessel overtaking another must keep out of its way. A steamship must always keep out of the way of a sailing vessel. In the case of two sailing vessels, the one running free keeps out of the way of the one close hauled; or, if both are close hauled, the one on the port tack keeps out of the way of the one on the starboard tack; the one with the wind free on the port side keeps out of the way of the one with the wind free on the starboard side, or, if both have the wind free on the same side, the one to windward keeps out of the way of the one to leeward, while the one with the wind aft keeps out of the way of the other. In the case of two steamships, when meeting end on, both turn to starboard; when crossing, the one having the other on its starboard side keeps out of the way of the other. An elaborate system of lights and signals exists to minimise the danger at night, and sirens and hooters are employed in fogs, when the chances of collision are greatly increased. Of recent years the 'lane system,' of American origin, by which each line of vessels is required to keep to a definite track, has come into vogue, particularly among trans-Atlantic steamers. Notwithstanding all precautions, however, the proportion of casualties due to collision, especially in the fairways leading to

crowded harbours, etc., is very high. With regard to the legal aspect of collisions, when the fault cannot be brought home to either party, the cost of the damage done is usually shared between the two. When the collision is clearly the fault of one party, that one bears its own loss, and pays for the damages done to the other. Collision comes within the scope of marine insurance.

Colloidion, a thick colourless liquid, obtained by dissolving pyroxylin in a mixture of ether and alcohol. This liquid evaporates quickly on exposure to air, leaving a film of pyroxylin, which is colourless and rough. It is used in photography (*q.v.*). There are several forms of C., each with its particular use in medicine. If a little castor oil and Canada balsam be added to the solution, a flexible or flexible C. is obtained which is used for protecting wounds from the air, etc. Again, salicylic acid and Indian hemp added to the ordinary C. give salicylic C., which is used as a corn cure.

Colloids, a name originally given by Thomas Graham in the middle of the nineteenth century to certain substances which, in apparent solution, do not possess the power of passing through a parchment membrane. Glue is a typical example; hence the name 'colloid' (Greek, *κόλλα*, glue). Other Cs. are gum, starch, caramel and white of egg, as well as *protoplasm*, the actual seat of life in all living organisms. More recent work has shown that any substance can be obtained in the colloidal state under suitable conditions; thus water, alcohol and various metals have all been made to behave as Cs. In a 'colloidal solution' it is believed that the particles of the C., which are electrically charged, are so small as to be kept in suspension by molecular bombardment from the liquid. The C. is easily coagulated or precipitated from its solution, *e.g.* by the addition of alum, though coagulation can be rendered more difficult, if stability is desired, by the addition of certain 'protective' substances such as tannin or gelatine. Coagulation may also be effected in many cases by the action of heat, as, for example, when white of egg is heated to about 70° C. A colloidal solution that retains the liquid form is known as a *sol*, but many Cs. can retain the colloidal state even when the solutions set to a jelly or *gel*. Ordinary cooking gelatine represents such a gel; although it appears to be dry it nevertheless contains a large quantity of water—about one-seventh of the total weight. A study of

Cs. has thrown much light on the mechanism of life processes and has also proved of great assistance in several industries, notably the rubber industry and the manufacture of artificial silk.

Collot d'Herbois, Jean Marie (1750-96), a Fr. revolutionist, b. in Paris. In the early part of his life he was a provincial actor, but on the breaking out of the Revolution he was drawn to Paris. He became a Jacobin, a member of the National Convention, and of the Committee of Public Safety. He was sent to crush the Girondist revolt at Lyons, and gained much ill fame by his bloodthirsty proceedings there. In 1794 he became disgraced, was banished and d. at Cayenne.

Collotype, or Phototype, one of the photo-mechanical processes for obtaining illustrations in printing, being largely employed for pictorial post cards. Either the vertical or a lithographic press may be used for the actual printing. A film composed of an ordinary gelatinous layer and, above, a sensitive bichromated gelatine is spread on glass and allowed to dry. Exposure to light under a reversed negative hardens the unprotected portions according to the amount of protection which the negative gives. In the printing press, after the bichromate has been washed from the soft parts, these will take up moisture in proportion to the action of the light. If an ordinary ink roller is applied to the film, the unmoistened and hard portions will freely absorb ink, and the remaining parts proportionately to their degree of wetness.

Collusion, in a wide sense, connotes any agreement between two or more persons to defraud another person of his rights, or to attain an object forbidden by law. In a narrower sense it denotes the particular fraud of a secret bargain between two or more persons whereby one person agrees to bring a bogus action against the other or others, so as to obtain a judgment, verdict, or decision which could not be obtained if the court knew all the facts. A judgment obtained by C. is void, but in the former state of English real property law, and in most ancient systems of law, collusive or fictitious suits to obtain a result not obtainable by existing principles of law were effectual under certain conditions. In a still narrower sense C. denotes an agreement between a husband and wife, whereby one spouse agrees to commit or to appear to commit a breach of the marital duties so as to enable the other to obtain a divorce or judicial separation. Such an agreement is an absolute bar

to divorce, and by the Matrimonial Causes Act, 1857, the court is bound to dismiss the petition. An agreement by the respondent to abstain from defending is also C., as is an agreement to pay the costs of all parties and to maintain the children of the marriage in consideration of no defence being put in. The practice of the Divorce Court requires both petitioner and respondent to file affidavits denying collusion.

Colman, George, the Elder (1732-94), was the son of Francis C., British envoy at the Tuscan court, by his wife, *née* Mary Gumley, sister to the Countess of Bath. Educated at Westminster and Oxford, he was called to the Bar in 1757. He did not practise, however, having succumbed to the glamour of the stage, so far as the writing of plays was concerned. A friend of Garrick, he had no difficulty in inducing that actor-manager to produce *Polly Honeycombe* at Drury Lane Theatre in 1760. The success of this piece confirmed him in his intention to devote himself to the composition of dramatic literature, and during his life he wrote a great number of plays, the best of which are, perhaps, *The Jealous Wife* and (in collaboration with Garrick) *The Clandestine Marriage*. Possessed of considerable private means, he led a very pleasant existence, finding his greatest delight in the company of Johnson, Goldsmith, and other members of the Club of which he was a member. For many years he had a *liaison* with Miss Ford, a minor actress, whom eventually he married, and by her he had a son, George C., the Younger (1762-1836). The lad was educated at a private school, and afterwards at Oxford and Aberdeen. Like his father, he was destined for the Bar, but he, too, abandoned his legal studies and wrote for the stage. His first production, in 1782, was *The Female Dramatist*. A prolific writer and adapter, the list of his plays and other works is very long. The father had at one time had a share in Covent Garden; the son in 1794 purchased the patent of the Haymarket Theatre: both were singularly unfortunate in their managerial ventures. In 1820 George IV. appointed him Lieutenant of the Yeomen of the Guard, but allowed him subsequently to sell this post. He was appointed examiner of plays in 1824, which office he held until his death twelve years later. The plays of these writers, though many of their productions were successful in their day, have not held the stage, and it is doubtful if any one of them repays perusal. The younger man published his *Random Recollections* in 1830, but

there is no good biography of either father or son. Peake's *Memoirs of the Colman Family* (N.D.) and Genert's *Account of the English Stage* furnish information.

Colman, Samuel (1832-1920), an American landscape painter, b. at Portland, Maine. He came to Europe and studied at Paris, Rome, and Dresden. He was the founder of the American Society of Painters in Water-Colours in 1866. Nearly all his works are seascapes, such as his 'Venetian Fishing Boat,' 'Two Boats on the Hudson,' and 'Sunny Afternoon in the Harbour of Algiers.'

Colmar or Kolmar, the cap. of the Fr. dept. of Haut-Rhin with 43,165 inhabs., of whom 30,000 are Catholics, 11,000 Protestants, and 1200 Jews. It has vineyards, breweries, tanneries, bell-foundries and spinning mills, there is a museum in the thirteenth-century cloister of the Dominican convent, and many curious old houses. It enthusiastically welcomed the victorious Fr. in 1918.

Colmenar de Oreja, a tn. in Spain, 30 m. S.E. of Madrid. It possesses quarries and potteries. Pop. 6700.

Colne, a tn. of Lancashire, England, situated on a trib. of the Calder, 26 m. N. of Manchester. There are manufactures of calico and mouselines-de-laine. In the fourteenth century the woollen manufacture flourished there. In the vicinity are slate and limestone quarries. Pop. 24,752.

Colne, a small riv., a trib. of the Thames. It waters the co. of Essex, flowing chiefly in a south-eastern direction and passing through Colchester; the length of its course is 35 m.

Colney Hatch, a hamlet in Middlesex, England, 1 m. W. of New Southgate. The London County Lunatic Asylum is situated here, with accommodation for 2000 pauper patients. In 1903 the Jewish wing of the building was destroyed by fire, which involved a loss of over fifty lives.

Colobus (Gk. *κολοβός*, docked, stunted), a genus of monkeys, differing from other monkeys by the more or less complete suppression of the thumb. The C. inhabits the mountain forests of Central Africa, and is sought chiefly for the beauty of its skin which is jet-black, though the tail is white and the face brown.

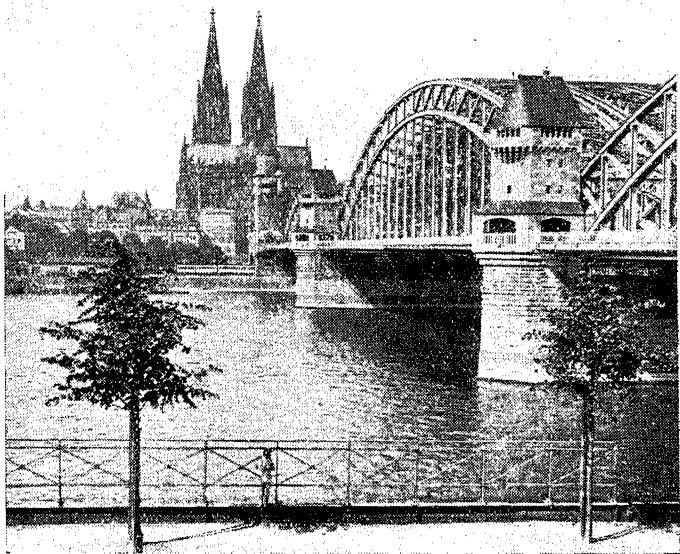
Cologna, a tn. of Italy, in the Verona prov., 20 m. S.E. of Verona, with an important trade in silk, hemp, wine, almonds, and grain. Pop. 9930.

Cologne (Ger. Köln or Cöln), a city, archbishopric, free port, fortress, and important commercial tn. of Germany. It is situated on the l. b. of the Rhine, 362 m. W.S.W. of Berlin, in the Prussian Rhine province; it is con-

nected by bridges with several suburbs on the r. b. Its pop. in 1925 was 700,222, four-fifths of whom are Roman Catholics. Since 1882 great and important hygienic undertakings have embellished and rendered wholesome the narrow, tortuous, evil-smelling streets of old C., and its extent has been greatly augmented by the addition of the land occupied by the demolished fortifications ceded to the town by the state; further developments followed until 1921. Among recent improvements is the Gürzenichstrasse, which runs along the S. side of the Gürzenich, from the Suspension Bridge, to intersect the old town from E. to W.; it was completed in 1914. The anct. buildings of C. are of great interest especially those of the Middle Ages, which offer fine examples of the Romanesque and Transitional styles. Among these are: the church of St. Maria im Capitol, built on a trefoil-shaped ground plan; St. Gereon, containing the relics of St. Gereon and of the 350 martyrs slain under Diocletian's persecution; St. Peter's, with its famous altar-piece by Rubens; the Minorite church, containing the tomb of Duns Scotus; and St. Ursula's church, where are said to be the bones of St. Ursula and of the 10,000 virgins martyred near C. while on a pilgrimage to Rome. The Church of St. Pantaleon, founded by Bruno, and used as a Protestant Church till 1918, was handed over to the Roman Catholics in 1922. Among the most interesting of the secular buildings of the same period are the Rathaus, with beautiful Gobelin tapestries and a five-storied tower (1407) which was furnished with a carillon in 1913. The Spanischer Bau (Spanish Building, 1611-17), by the Rathaus Chapel, was remodelled in 1921, and its upper floor is used for meetings of the town council, the Tempelhaus, now the chamber of commerce, but formerly the seat of a patrician family; and the Wallraf-Richartz Museum. Of later date are the Zenghaus (Arsenal), the Imperial Bank, and the Municipal Library and Archives. But by far the principal object of interest in C. is its Dom or Cathedral, one of the finest specimens of Gothic architecture in Europe. Its corner-stone was laid by Archbishop Conrad of Hochstaden in 1248, the sanctuary was dedicated in 1322, the nave was ready for use in 1388, the southern tower had reached a height of about 180 ft. in 1447. Then the work was interrupted entirely for 400 years. In the nineteenth century it was resumed chiefly through the efforts of Sulpice Boisserée, who pre-

vailed upon the crown prince, afterwards Frederick Wilhelm IV., to use his influence to get the cathedral completed. Great popular enthusiasm was roused and all—Catholics and Protestants alike—contributed generously to the funds for carrying on the gigantic work. It was finished in 1880, and the opening ceremony took place in the presence of Wilhelm I. and all the reigning princes of Germany. The two architects who successively directed the work during

and Balthazar, kings of C., supposed to be the three wise men from the East. A green-coloured bowl embossed with tiny female heads, fourth century A.D., which was found near C. in 1921, is now in the collection in the East Wing of the cloisters of the Dom. C. was founded by the Ubii, who were compelled by Agrippa to migrate from the right to the left bank of the Rhine. In A.D. 51 Agrippina, mother of Nero, founded here the Colonia Agrippinensis, a colony



THE RHINE, COLOGNE

[D. McLeish

the nineteenth century were Zwirner, who died in 1861, and Voigtel. The whole edifice covers a space of 7370 sq. yds., its nave of five aisles is 445 ft. long, and its transept with three aisles is 282 ft. wide; the height of the nave is about 202 ft., and that of the two towers 515 ft. The imperial bell—the Kaiserglocke—weighed 543 cwt., and was cast from the bronze of twenty-two cannons taken from the French. This was dismantled during the Great War and was replaced by another bell weighing some 400 cwt. In the choir the heart of Marie de' Medici is buried, and in one of the chapels is the Shrine of the Three Kings—Kasper, Melchior,

and Balthazar, kings of C., supposed to be the three wise men from the East. A green-coloured bowl embossed with tiny female heads, fourth century A.D., which was found near C. in 1921, is now in the collection in the East Wing of the cloisters of the Dom. C. was founded by the Ubii, who were compelled by Agrippa to migrate from the right to the left bank of the Rhine. In A.D. 51 Agrippina, mother of Nero, founded here the Colonia Agrippinensis, a colony

of Roman veterans. In 308 Constantine began a stone bridge, which was afterwards destroyed by the Normans. From the end of the fifth century C. belonged for a long time to the Franks. Charlemagne raised its bishopric to an archbishopric. During a long period the archbishops and the citizens were continually at variance, but municipal independence was finally established by the Battle of Worringen, 1288. Its University, which was established in 1388, has some 4700 students and about 200 professors and teachers (1926). The theological faculty is Protestant. The present university was built in 1904 as a commercial academy and

was re-founded in 1919. The first commercial fair, the Kölner Messe, was held in 1924, on the Rhine below the Hohenzollern Bridge. An academy of practical medicine was established in the University in 1919 by the Municipality. In the thirteenth, fourteenth and fifteenth centuries C. maintained a great commercial prosperity: this was completely lost after the sixteenth century. By the peace of Campo Formio, 1797, the town was incorporated with France. Under Prussian rule after 1815 it made rapid progress to its present position of high commercial prosperity. C. is connected by direct service of cargo steamers with London and other English ports. The principal industries of C. are the manufacture of sugar, chocolate, tobacco, snuff, and cigars, liqueurs, eau de Cologne, carpets, tapestry, furniture, vinegar, wax, soap, paints, lacquers, varnish, oil, silk, velvet, woollen and cotton fabrics, gutta-percha articles, machines, carriages, ropes, pumps and hydraulic presses, zinc, lead and marble ware, hats, paper, musical instruments, jewellery, etc.

History since 1919.—C. was garrisoned, after the Armistice of 1918, by the British Rhine Army of Occupation, and this occupation continued until 1925, when the forces, then reduced to the dimensions of a large brigade, were transferred to Wiesbaden. Previous to the setting up of the Inter-Allied Rhineland High Commission, the C. zone was placed under Sir Charles Fergusson as Military Governor. The British Cavalry patrols entered C. on Dec. 6, 1918, and Sir Charles Fergusson made his formal entry on Dec. 11, and on Dec. 12, the British troops took possession of the Rhine bridge-heads. Later, on the establishment of the Commission, the regime of the Governor was replaced by that of a General officer Commanding-in-Chief, with headquarters in the famous Dom, General (later Field-Marshal) Sir William Robertson being the first Commander-in-Chief of the Rhine Army. The area of the British occupation was about 1034 sq. m. and the civil administration was under the Cologne sub-Commissioner of the Inter-Allied Rhineland High Commission, who was assisted by a number of 'Kreis officers.' The civil administration was grafted on to the Ger. system, of which the Kreis, or district, was the unit. Civil order was maintained partly by the British military police and partly by the Cologne civil police. By the terms of the Rhineland Agreement (which the High Commission was called into being to

administer) 75 per cent. of the police had, for military reasons, to be recruited from the Rhineland area itself. The occupation of C. was, throughout, of a peaceful nature, and the British regime was marked by a spirit of moderation. The British military governor's first difficulty was in dealing with a series of strikes. Industrial conflicts were fomented and the general labour situation was difficult. The governor therefore established arbitration Courts, before which local employers and the workers' representatives appeared. Equitable solutions of labour troubles were found, and the time came when the Ger. workmen appealed to the British authorities as a matter of course, for the care of the Commission throughout its existence was the ever-recurrent strike. Later, under the regime of the Commander-in-Chief, British military Courts were also set up, to try all offences committed within the occupied zone. These courts gave satisfaction, and a high tribute was paid to their sense of justice at the close of the occupation, and also to the orderliness of the occupation generally, by Dr. Adenauer, the Oberbürgermeister of C., and Graf Adelmann, the Regierungspräsident, the high official responsible for the Ger. administration in the British zone. A delicate period supervened when the Fr. and Belgian troops entered the Ruhr (*see* RUHR). The military and civil authorities in the C. area had to keep their zone free from incidents which were daily occurring in the Ruhr and in other parts of the Rhineland, as a result of the Ger. policy of passive resistance. Now and again it was found necessary to suspend the publication of certain newspapers in C., but only when a Brit. rule was infringed. Dangerous Communist propaganda was not permitted, and the disciples of Moscow who sought to create trouble in C. were expelled. The relations between the British Army and the people of C. were always correct, and if there was no attempt by authority to promote social relations between the Army and the inhabitants, it was because a service order was implicitly obeyed; but none the less as between the British soldier and the hausfrau of his billet in C. relations were cordial. One beneficial effect of this sequel to the war on C. was that, for the first time in its history, the City was free from the fetters of fortress works. For, by the Peace treaty, fortification of C. was prohibited, and the fortress works existing were accordingly razed. This gave the city

municipal authorities a golden chance of getting clear of C.'s encircling bonds and so extending its development laterally with the Rhine. This opportunity they were not slow to seize, as has been evidenced by the town-planning and river-harbour schemes.

Cologne Post. The newspaper of the British Rhine Army during the occupation of Cologne and Wiesbaden (see COLOGNE; RHINE ARMY, BRITISH). It was first issued as a daily (Mondays excepted), the first number being dated March 31, 1919. Its founder and first editor was Capt. E. Rolston, of the E. Kent Regt., and early in its career it received the warm co-operation of Sir Wm. Robertson and the General Staff. During the taking of the plebiscite in Silesia, a daily edition was published at Oppeln. The difficulties of production were great, and but for a certain measure of official sympathy the venture must have failed. The paper was printed on a flat-bed machine by Ger. composers. When the Brit. Army of the Rhine moved to Wiesbaden, the paper ceased for a brief period, but was re-established as a bi-weekly in that town as the *Cologne Post and Wiesbaden Times*. The last number was issued on Nov. 3, 1929. The news was supplied by wireless transmission from the Aldershot command. On the death of Capt. Rolston in 1921, Col. Cranston became editor, and in 1923 Capt. J. H. Haygarth, who was Amusements Officer to the forces throughout the occupation, became Managing Editor till the paper expired. Regular London letters and special articles were written by Mr. Athelstan Ridgway, the former under the pseudonym of 'Periscope.' The *C. P.* brought off one big 'scoop'—the text of the principal clauses of the Treaty of Versailles.

In Coblenz, the American Army of Occupation during the brief period of its stay in Germany conducted a similar venture, called the *Amaroc News*; while the best known of the papers of the French Army of Occupation was the *Rhin Illustré*.

Colomb, Philip Howard (1831-99), a British vice-admiral, inventor, and biographer, b. in Scotland. In 1852 he took part in active service in the Burmese War. He was the inventor of the system known as C.'s flashing signals, which has been universally adopted all over the world. He wrote *Essays on Naval Defence*, 1893, and other works.

Colombes, a tn. of France in the dept. of Seine, 7 m. N.N.W. of Paris, on the railway route from Paris to

Havre. There are oil refineries, printing works and foundries. It is noted as the place where died Henrietta-Maria, wife of Charles I. of England. Pop. 42,590.

Colombia, a N.W. republic of S. America. It is bounded on the N. by the Caribbean Sea, on the E. by Venezuela, on the S. by Brazil and Peru, on the S.W. by Ecuador, and on the W. by the Pacific Ocean, and on the N.W. by the Gulf of Darien. It is divided into fourteen Departments, two Intendencias and seven Commissariats. Its area is estimated at some 480,000 sq. m. The earliest records of C. go back to about the year 1500, when the Spanish navigator, Alonzo de Ojeda, settled on the coast near the snow-covered range of Santa Marta, which had already been discovered by another Spaniard, Roderigo de Bastidas. This territory was granted to Ojeda by the Spanish crown, and soon after the portion adjoining was bestowed upon another explorer, Nicuessa. These two territories, called respectively Nueva Andalucia and Castilla de Oro, became united in 1514 into the province of Tierra-firma, with Pedro Arias de Avila as its governor. With the establishment of these colonies and the discovery of the South Sea by Balboa, a direction was given to the exploration of Colombia. The large rivers Atrato, Cauca, and Magdalena were explored and conquered in 1536-37. Quesada penetrated along the Magdalena as far as Bogotá, the chief town then, and still the capital. To this part of the country the name of New Granada was given, and this continued to be the official name until C. won its independence. Next followed expeditions to the E. and S.E. in search of the 'Gilded Man'—the 'El Dorado'; from this an extension of geographical knowledge was the only result. By the middle of the century Spanish power was fairly established, and flourishing coastal towns were springing up. In 1563 New Granada formed part of the Spanish vice-royalty of Peru, but after many vicissitudes it was constituted a separate vice-royalty in 1751. Extreme measures of taxation and exorbitant duties provoked a revolt against Spain, and from 1811, when the revolution became formal, till 1821, when New Granada, Venezuela, and Ecuador became united under the name of C., incessant war was waged with Spain. The union was effected by Simon Bolivar (*q.v.*), but at his death in 1830 Venezuela and Ecuador seceded, and in 1831 C. called itself the Republic of New Granada. In 1861 it became the

Republic of C. Like all the republics of America, it is divided into two factions, the Conservatives, whose object is centralisation, and the Democrats, whose aim is decentralisation, with complete autonomy for each state. Up to 1886 its constitution was that of a federal republic; at that date its states became departments. From 1889 to 1902 civil war was waged intermittently and resulted in the triumph of the centralist forces over the revolutionaries. At the present day the executive authority is vested in a

of the Amazon and Orinoco. The mountain system consists of three spurs of the Andes, which spring out fan-like from the Plateau of Pasto in the S.W.; these are the Western, Central, and Eastern Cordilleras. Besides these chief ranges there are, in the N., the Sierra Nevada de Santa Marta and the low Bando range along the N.W. coast and extending into Panama. The principal rivers are the Magdalena and its tributary the Cauca, rising in the Central Cordillera and flowing into the Caribbean Sea; several tributaries of



[Courtesy of Dr. Wilson Popehoe.]

A TYPICAL ANDEAN ROAD NEAR FACATATIVA, COLOMBIA

president elected for four years, assisted by a Cabinet of six ministers. The Congress is composed of a House of Representatives, elected by direct vote, and a Senate, elected by indirect vote. The prolonged Panama dispute between C. and the U.S.A. has now been concluded. Panama had seceded in 1856, rejoined the republic again, and again seceded in 1903. The U.S.A. recognised the independence of Panama, but it was not until 1922 that a treaty was ratified whereby the independence of Panama was established while C. received an indemnity of 50 million dollars as compensation. The surface of C. is exceedingly varied. In the W. there are lofty mountains; in the E. there are vast llanos and forest plains, watered by tributaries

of the Amazon in the E.; and the Patia, flowing into the Pacific, after making its way through a gorge 10,000 to 12,000 ft. high in the cliffs. The climate of C. is determined by the double influences of latitude and altitude. Situated entirely in the tropical zone, its days and nights are of equal length, and it has the two seasons—the wet and the dry. The country includes every altitude, from the sea-level to upwards of 18,000 ft. in the region of perpetual snow; it has therefore every temperature, from that of the torrid zone to that of the frigid. The lowland portions, covered with dense forest, have an intensely hot climate; the inland mountain region is comparatively cool. The wide-stretching plateaux of the Eastern Cordilleras have a cool

and healthy climate. This region is the most thickly populated of the republic; in it is Bogotá, the capital, 8694 ft. above the sea. The climate of Panama is exceedingly unwholesome, and in parts of Bolivia and Magdalena marsh fevers are rife. Sanitation is now being satisfactorily developed. The pop. of C. is estimated (1928) at 8,000,000, of which only 158,428 are Indians. The white population is of Spanish descent, and there are besides these the Meslizoës, of mixed Spanish and Indian blood, and the Indians. Slavery was finally abolished in 1852. Primary instruction is free, but not compulsory; there are several normal schools and a few institutions for professional education. There are about 3000 public schools with 240,000 pupils. The state religion is Roman Catholic. The chief industries of the republic are agriculture and mining. The principal productions are bananas, coffee, cacao, sugar-cane, cotton, corn, rubber, wheat, and barley; banana culture is on the increase. The annual export of bananas is about 200,000 metric tons, and light coffee is an equally large and valuable export. Of the coffee exported 67 per cent. goes to the U.S.A., and nearly all the tobacco goes to Germany. Oil was discovered in 1922 and the chief wells are at Barranca on the Magdalena R., whence a pipe line runs to Cartagena, 360 m. away, with a daily capacity of 50,000 barrels. The 1922 output of 323,000 42-gallon barrels has arisen to the present output of 20,000,000 barrels a year. The mineral wealth is great, especially in Antioquia. There is an enormous annual output of gold and silver, and rich deposits of copper, lead, zinc, mercury, iron, platinum, and salt are found. The famous emerald mines of Muzo and Cosquez are a government monopoly, the former, however, is American run. The manufacturing industry is relatively unimportant, but in the larger towns many articles in common use are produced; among these are cotton textiles, shoes, hosiery, matches, sugar, liquors, flour, and bricks. The chief imports are flour, lard, petroleum, and cotton goods from the U.S.A.; sugar, rice, and potatoes from Germany; and cotton goods from Great Britain. Great improvement has been made the last few years, not only in the railways, but in waggon roads and river navigation. There are about 2000 m. of railway (1930), and an efficient air-service is in operation. C. is now prosperous, and it is estimated that 200 million dollars are invested in the country. In 1926 C. was

elected to membership of the Council of the League of Nations. The chief towns, with their populations (census 1928), are: Bogotá, 235,421; Barranquilla, 139,491; Cali, 124,857; Medellín, 120,440; Cartagena, 86,467; Manizales, 85,203.

Colombo, one of the finest and largest sea-ports of Asia, and the capital of Ceylon, with 248,826 inhabs. The harbour, which has an area of 1 sq. m., and is protected by four magnificent breakwaters, affords shelter for forty-five ocean-going steamers during the S.W. monsoon and thirty-nine during the N.E. There are a graving-dock and coaling depot. The city extends from the Kelani R. on the N. to the fourth mile on the Galle Road on the S., and covers 8617 acs. The European quarter is called the Fort, although the Portuguese and Dutch fortifications were demolished in 1869 as obsolete. Has broad streets, fine buildings belonging to European firms, hotels and cathedrals. E. of the fort lies the native business quarter, called Pettah, with mean dwellings, countless shops and a very busy traffic. To the N. extends the quarter of St. Paul, with extensive Catholic and Anglican colleges. E. of Pettah is a nearby rural dist. covered with native huts in hedges of banana, areca and coco-palms. The very picturesque suburb of Kutwal is chiefly inhabited by Rom. Catholic fishermen. Wolfendale church is the most interesting and complete of the few relics of the Dutch occupation. A tortoise said to have lived for 200 years is preserved in the museum in the Victoria Park, and a colossal stone lion on which the king sat to administer justice. The university has 300 students, and there are seven Eng. and two Singhalese newspapers. C. is mentioned in 1346, the Portuguese took it in 1517 and named it C. in honour of Christopher Columbus. The Dutch took it from them in 1656 and surrendered it to the British in 1796. C. is a port of call for all vessels bound to Australia, the Bay of Bengal and the Far East.

Colon, see COLIPIIS and INTERINES.

Colon, a city in Matanzas prov., Cuba, 52 m. S.E. of the tn. of Matanzas. Large sugar refineries comprise the chief industry. Pop. 8000.

Colon, (earlier Aspinwall), at the N. entrance of the Panama Canal, with 31,200 inhabs. Formerly very unhealthy, it has, since the opening of the canal, a complete system of sanitation, and has greatly thrived. The trade is mostly in the hands of Syrians and Chinese. Many for-

eigners travel by the railway to Panama.

Colonel (It. *colonello*, the leader of a column), in the British army, the chief commander of a regiment; the grade of officer next to that of general. In 1588 the title of C. was substituted for that of captain to designate the chief officer of a regiment. In the artillery and engineers the C. is always the real acting commander, but the lieutenant-colonel is the real commander of an infantry battalion or of a cavalry regiment. In the latter case the office of C. is a sinecure, but it is to be noted that this applies only to a regimental C. as distinct from a C. 'on the staff.' A regimental colonelcy carried with it the pay of £1000 a year, and was given to a general on his retirement and as a reward for long service. But, as the result of a decision of 1888, this rule died out and only those having at that date a vested right to such an appointment came under the old order of things. Henceforth those officers only may become Cs. who have received a brevet for distinguished conduct. There are besides certain appointments which carry with them the rank of C.; those of aide-de-camp to the sovereign, of assistant adjutant-general and of commander of a regimental district being the chief. After the Great War the rank of Colonel-Commandant displaced that of Brigadier-General in the British Service, but in 1928 Brigadier displaced Colonel-Commandant. Cs. of Regiments are now selected from any officer of the rank of full C. and upwards who has served with distinction in the particular regiment. They retire on attaining the age of seventy years. At present Colonels-Commandant of the Royal Artillery, Royal Engineers, etc., correspond somewhat to the Colonel of a Regiment. In the King's Royal Rifle Corps and Rifle Brigade they are equivalent to Colonels of Regiments.

Colonia, a dept. in Uruguay, on the Plata, with an area of 2,185 sq. m. There are fertile plains and valleys, which are under cultivation. European colonists have settled there, and are engaged in stock-raising and agriculture. Pop. 100,000. C. del Sacramento, on the Plata, opposite Buenos Ayres, is the capital, and possesses a fine harbour, with capacious docks. Pop. 8500.

Colonial Agents, a name given to agents in England who act on behalf of the different British colonies. Their duties are not strictly defined. The agent-general acts for the Crown colonies. Where there is a local legislature the appointment of the agent is usually made by it. Most of

the N. American colonies before their separation had special, salaried agents in England to superintend their affairs. Roebuck (1802-79), a special agent appointed by the House of Assembly of Lower Canada, spoke in both Houses of Parliament in opposition to the Bill for suspending Lower Canada's constitution.

Colonial Corps, bodies of troops raised in the colonies in which they are intended to serve, and officered by officers belonging to the regular army of the country to whom the colony belongs. They are, as a general rule, kept entirely in the colony in which they were raised, never being used for foreign operations. The Hong-Kong regiment may be mentioned as one such corps.

Colonial Defence Committee, first established in 1885 at a time when there were rumours of war on the Continent, and, later, developed through the machinery of colonial conferences into a permanent sub-committee of the Committee of Imperial Defence. To this sub-committee, which is now called the Oversea Defence Committee, are referred all matters of defence appertaining to or in any way affecting the self-governing dominions of the empire or the Crown colonies. The chairman of this committee is the Permanent Under-Secretary of State for the Colonies, and the members include the Director of Naval Intelligence, the Director of Military Operations, the Director of Fortifications and Works, the Director of Artillery, the Military Secretary of the India Office, and a representative of the Treasury.

Colonial Development Advisory Committee, was appointed in Aug. 1929, by the Secretary of State for the Colonies, under the authority of the Colonial Development Act, 1929. Its function is to consider and report on applications for assistance from the Colonial Development Fund, in furtherance of schemes likely to aid and develop agriculture and industry in the colonies, protectorates and mandated territories and thus promote commerce with, or industry in, the United Kingdom by any of the means specified in the first section of the Act. These means are comprehensive and, as exemplified by applications already made by various Colonial Govs., are wide enough to include the construction of deep-water harbours; afforestation; hospitals and hospital equipment; improvement of medical services; development of schools both for European and for native children; establishment of malarial research units; public health schemes; railway development;

housing schemes for natives; stations for coffee and sisal research and research into plant ecology (*q.v.*) generally; erection of factories; construction of new telegraph and telephone units. The Committee's duty is to examine the advantages of any particular schemes proposed, and generally, the allocation of cost as between Imperial and the Colonial funds. The ultimate sanctioning authority is the Treasury. There can be no doubt that these schemes, where sound economically, will eventually confer the greatest benefit on the Colonial Empire.

Colonial Law, the law to which a colony becomes subject on its foundation depends on the mode of acquisition of the colony, whether by settlement, conquest, or cession. Eng. subjects are said to carry their law not only to new and uninhabited colonies, but, to a certain extent, also to ceded and conquered colonies; but they carry no more of the Eng. law than is adapted to the particular circumstances of the infant colony, *e.g.* the Mortmain Acts (*q.v.*) were held inapplicable to New South Wales, the Marriage Acts to India, but the Bankruptcy Act, 1882, has been held to be of universal application. The Eng. ecclesiastical law applies to settled colonies because there is no established church in them. By the provisions of the British Settlements Act, 1887, the king may, in the case of barbarous and desolate colonies having no legal form of gov., make law and establish courts and delegate all necessary powers of gov. to any three or more persons resident there. When a settled colony has been granted a legislative institution the Crown stands in the same position to that colony as it does to the United Kingdom. In the case of conquered and ceded countries, the existing law remains until changed by the conqueror, *e.g.* old Fr. law applies to civil matters in Canada unless altered by the Dominion legislature. Laws at variance with the fundamental principles of the British constitution cease at the moment of conquest or cession. The king has power by order in council, or by charter of justice under the Great Seal, to make new laws. But having once granted legislative powers to a colony, he ceases to have any legislative power in regard to local matters. The king's legislative powers are the same in most respects as regards both ceded and conquered countries, but ceded colonies may have made conditions as to maintaining local laws, customs, and, in general, such conditions will be binding. By the Colonial Laws Validity Act, 1865, a colonial law is

invalid only to the extent to which it may be repugnant to any Act of Parliament having reference to the particular colony, and no colonial law is to be deemed void by reason merely of instructions given to the governor by any instrument other than the instrument authorising him to give his assent to the passing of laws. By the same Act every colonial legislature has power to establish courts of judicature, and to make laws respecting the constitution, powers, and procedure of such legislature. A change in the operation of Dominion legislation, especially in the direction of giving such legislation extra-territorial effect, is foreshadowed as a result of the decisions of the last Imperial Conference (1930). It is proposed to pass an Imperial statute, embodying these decisions, to become operative on Dec. 1, 1931. If the statute is passed, a Dominion Parliament will have full power to make laws having extra-territorial application. The Colonial Laws Validity Act, 1865, will no longer apply to any law made after Dec. 1, 1931, by a Dominion Parliament; so that no law so made will be void or inoperative for repugnance to Eng. law or to any future Act of Parliament of the United Kingdom, and a Dominion Parliament will have power to repeal or amend any such Act in so far as it is part of the law of the Dominion. No Act passed after Dec. 1, 1931, will be deemed to extend to a Dominion unless it is expressly declared in the Act that the Dominion consented to its enactment. But the new Act confers no power to repeal or alter the Constitution or the Constitution Act of Australia or the Constitution Act of New Zealand otherwise than in accordance with the pre-existing law; nor can the Australian Commonwealth Parliament legislate on any matter within the authority of the States of Australia not being a matter within the authority of the Parliament or Gov. of the Commonwealth. There is to be special provision for New Zealand to the effect that the proposed Act will only extend to that Dominion if it is expressly adopted by its Parliament, and only from such date as that Parliament may determine. The Report of the Conference of 1929 on the Operation of Dominion Legislation (*Cmd.* 3479) also considered the advantages which might accrue from the establishment of a Commonwealth tribunal as a means of determining differences and disputes between members of the British Commonwealth; and the Imperial Conference agreed that the tribunal

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should be constituted *ad hoc* in the case of each dispute to be settled, and that it should consist of five members, including the chairman, neither the chairman nor the members to be drawn from outside the British Commonwealth of Nations. Severe comments have been made by jurists and others on the drastic change contemplated by the Report and its consequential Act, it being apprehended that the broad effect will be to lessen the ties between the Motherland and the great overseas Dominions so as, in effect, to set up some seven separate republics in the place of a united Empire; but the better opinion would seem to be that the change contemplated is in accordance with the rapid development of representative parliamentary institutions in the Dominions and with the spirit of the age.

Colonial Office. In England the earliest separate organisation for the administration of colonial affairs was a committee of the Privy Council appointed by the king in council in 1660 'for the Plantacons.' By 1695 certain limited powers in regard to the colonies were vested in a commission known as the Board of Trade and Plantations, but the executive work was done by the Secretary of State for the S. Dept. In 1794 the Secretary of State for War had assumed control, but in 1854 the outbreak of the Crimean War led to the appointment of a Secretary of State for the Colonies to relieve the War Secretary of Colonial business, and the secretariat for the Colonies has continued a distinct department ever since. The office, the importance of which was greatly enhanced under the secretaryship of Mr. Joseph Chamberlain at the end of the last century, later comprised three depts.: (1) The Dominion dept., which dealt with self-governing colonies and the imperial conferences; (2) the dept. for the Crown colonies and protectorates; and (3) the general and legal dept. After the Great War a Middle East Dept. was set up to deal with business relating to the mandated territories of Palestine and Mesopotamia (re-named Iraq, *q.v.*). In 1925, a new Secretaryship of State for Dominion Affairs was created, and as a result the Dominions Office was formed to take over from the C.O. business connected with the self-governing Dominions, including the Irish Free State, the self-governing Colony of Southern Rhodesia and the S. African territories, Basutoland, Bechuanaland, and Swaziland, and business relating to the Imperial

Conferences (*see* IMPERIAL CONFERENCE). For some years both Secretaryships were held by one Minister, but in 1930 a separate Minister was appointed to the Dominions Secretariat with a separate Parliamentary Under-Secretary. The administrative powers of the Colonial and Dominions Secretaries do not embrace India nor the Channel Is. and the Isle of Man, the two latter being under the Home Office. The affairs of Egypt and the Soudan are under the charge of the Foreign Office. But with these exceptions the two Secretaries of State speak for the whole of the British overseas dominions, colonies, protectorates, etc., upon all matters arising in parliament in regard to such dominions, etc. Colonial governors are appointed on the recommendation of the Colonial Secretary and Governor-General and High Commissioners of Dominions in that of the Secretary of State for Dominion Affairs, while other executive and all judicial appointments are made directly by them.

Colonial Office Conference. The first of these conferences was inaugurated in 1927. They may be regarded as Imperial Conferences in miniature. The second was held in 1930, when representatives of some thirty British Colonies, Protectorates, and Mandated Territories met in the Colonial Office, Whitehall, under the chairmanship of the Colonial Secretary. The matters considered fell under three heads: development, administration of scientific and technical departments, and general administration. The first head covered a wide range of subjects, *e.g.* cables and wireless communication, broadcasting, civil aviation, aerial survey, meteorology and development of air routes—topics which, of necessity, bulk largely in a scattered colonial empire (*see also* IMPERIAL CONFERENCE), railway and motor transport, cinematograph films (considered from their educational effect on the native mind), and the development of fisheries. Under the second head was the organisation of scientific services, including agriculture, public health, and education. The third head comprised the consideration of departmental recommendations on the staffing of the colonial services, especially for the establishment of a united Colonial service.

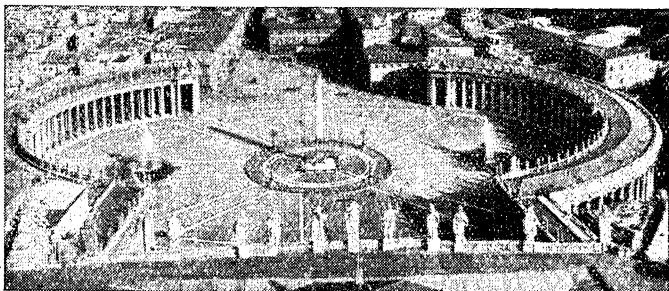
Colonies, Zoological, are formed when a low organism gives rise to several buds which adhere to the parent and continue to reproduce after this manner. Such colonies, occasionally found among the Pro-

tozoa, are very usual among the Porifera of sponges, and among the Coelenterata the fresh-water *Hydra* forms such an aggregate of individuals temporarily, while many other forms, e.g. dead-men's-fingers, or *Alcyonium digitatum*, and most corals, are permanently colonial. In many cases the individuals which make up a colony perform identical functions, but in the condition known as polymorphism the functions are specialised and allotted to various persons. Thus the individuality of the members is frequently lost, and they become almost like organs instead of whole living creatures.

Colonna is the name of one of the oldest and most illustrious families of Italy, which has produced popes, cardinals, princes, and generals, and belonged to the Ghibelline party.

Julius II. he was deprived of his office, but was pardoned by Pope Leo X., and created cardinal in 1517. He held the office of Viceroy of Naples from Charles V. from 1529 until his death. He had some talent as a poet; his celebration of the famous Italian poetess, Vittoria C., entitled *De Laudibus Mulierum*, is his principal work.

Colonna, Prospero (1452-1523), an Italian condottiere who offered to help Charles VIII. of France when that king invaded Italy in 1494-95. He was an extremely able general, and later on entered the service of the Pope, and among his many victories he won the Battle of Vicenza in 1513 against the Venetians, and the Battle of Bicocca in 1522 against the Franco-German forces under Lautrec. Sismondi gives a good account of this



THE COLONNADE, ST. PETER'S, ROME

[D. McLeish

Colonna, Fra Francesco, a Dominican, b. at Venice. He is famous chiefly as the writer of a mysterious allegorical romance, *Hypnerotomachia Poliphili, ubi humana omnia non nisi somnium esse docet*, which would probably be forgotten but for a rare edition with engravings by Giovanni Bellini and for Paul de Saint Victor's illustrations.

Colonna, Giovanni Paolo (1640-95), an Italian composer, b. at Bologna. He composed mostly church music. On four occasions he was elected principal of the school of music at Bologna. Some of his compositions are still in MSS. at Bologna and some at Vienna, but a fair number of them were printed in 1681-94.

Colonna, Pompeo (1479-1532), an Italian cardinal, nephew of Prospero C., Italian condottiere. After having been a soldier in his youth, Pompeo C. entered the Church, and was made Bishop of Rieti in 1508. For inciting the people to revolt against Pope

man in his *Histoire des Républiques Italiennes au Moyen-Age*, an extract of which came out in Eng. in 1830.

Colonna, Vittoria (1490-1547), a poetess of Pescara, Italy's most celebrated poetess, daughter of Fabrizio C. She was betrothed at the age of four to Francisco d'Avalos and was brought up in the mansion of Costanza d'Avalos, Francisco's aunt, where Tasso and most of the intellectual men of the time were constant guests. She was remarkably beautiful, very intellectual and well educated; her first poetry was written at an early age. From 1512 she led a very lonely life, her husband being absent with the fighting army; he is the one subject of her verse during this time. After his death she lived in retirement for ten years. Later she lived for four years in a monastery at Orviêto, then in a convent at Viterbo. Michelangelo, between whom, in his later years, and Vittoria C. existed a warm friendship, wrote some of his

finest sonnets to her. The *Rima Spirituali* are her most characteristic poems.

Colonnade, one or more ranges of columns symmetrically disposed, in front of, or surrounding a building either outside or inside.

Colonne, Guido Delle, Giles, or Gilles de Colonne, Egidio Colonna, or Aegidius Romanus (*d.* 1316), an Italian theologian and writer, *b.* at Rome. He became tutor to the Dauphin of France, Philippe le Bel, for whose use he wrote a treatise entitled *De Regimine Principum* (pub. in folio at Rome in 1492). In 1292 he was elected general of the Augustine order, and later became Bishop of Bourges. He was an exceedingly learned man, and was called by his contemporaries 'the well-founded doctor.' He wrote several books on philosophy and divinity. A Life of him by Angelo Roecha is prefixed to an edition of his work, *Defensorium*, published at Naples in 1644.

Colones (Colonna), Cape (It., 'column'; formerly Sunium Promontorium), also called Sunion or Kolonnæ, the most southerly point of Attica, Greece. At the cape's extremity are ruins of a temple (269 ft. above sea-level) dedicated to Athene, of which thirteen marble columns still stand, and from these the town derives its name.

Colonsay and **Oronsay**, two Inner Hebridean islands, off Argyllshire, Scotland. C. measures 8 m. by 3 m., and possesses a college, which was founded by St. Columba. St. Columba landed at O, from Ireland in 563 and afterwards removed to Iona. There are extensive remains of a priory founded in the fourteenth century. Pop. 284.

Colonus, or **Kolonos Hippios**, a site in Attica, Greece, about 2 m. N.W. of Athens. Sophocles was born there, and immortalised it by the description which he gave of it in the *Œdipus at Colonus*. Two most famous archaeologists, Charles Lenormant and Ottfried Müller, are buried in the cemetery upon the hill-top.

Colony (Lat. *colonia*, from *colere*, to till), a name applied to a country which is peopled by immigrants, who remain subject to or connected with their parent state. The ancient Gks. colonised extensively along the coast of Asia Minor, Thrace, S. Italy, N. Africa, Sicily, and the Crimea. A Greek C. was called *ἀποικία*, and the colonists *ἀποίκους*, *i.e.*, literally, 'people from home.' The cause of emigration from Athens was usually political dissension. The band consulted the oracle and chose a leader, called *οἰκιστής*, who took sacred fire

from the Prytaneum, that the new city might be patterned after the *μητρόπολις*. The city thus founded was entirely self-governing and independent, and was connected with Athens only by ties of sentiment and religion. The *κληρονομία*, literally 'allotment,' on the other hand, though it had a certain amount of internal self-government, remained in close connection with the mother city, the citizens being recognised as Athenian citizens. The Phœnicians and Carthaginians were great seafarers, but their purpose was purely a commercial one, and they aimed at building trading centres, rather than at establishing Cs. The Roms., who were a great colonising race (strictly speaking a *colonia* is a farm, or cultivated land, but the meaning was extended to embrace any public settlement of Rom. citizens, and later it acquired a military sense), began their C. in the neighbouring cities. Whenever Rome conquered or acquired new territory, she left behind her a handful of citizens to act as a garrison. These citizens were frequently veteran soldiers. They were given the land as a reward for past services, and had to answer to Rome for the loyalty and good behaviour of the *colonia*. The Roms. had a genius for organisation and administration. Some Cs. were rewarded with the high privilege of Rom. citizenship, while others remained in the humbler position of dependencies, and still others grew into large Rom. provinces. The Gov. was modelled on the republican gov. of Rome, and the Cs. were governed by the same kind of officials. The highest men in the state were rewarded with the governorship of a province or C. After the fall of Rome, Cs. were not heard of again till early in the sixteenth century, when Spain and Portugal took the lead, followed closely by England, Holland, and France. During the Renaissance men were inspired by a high, adventurous spirit. Those who came back across the Atlantic filled the minds of their fellow-countrymen with stories of a wonderful land, where unlimited gold might be found. The possibilities of the New World seemed to be unlimited, and every country which had any maritime power wished to be there first and possess the best of everything. Portugal had, as early as the fifteenth century, placed trading factories along the W. coast of Africa, which she later extended as far as India. Portugal now developed her empire in S. America, as well as in Africa, her great rival in the former country being Spain.

Modernes, 1891; Jebb, *Studies in Colonial Nationalism*, 1905; Sir C. Dilke, *The British Empire*, 1899; F. Dodd, *A Short History of the English Colonies*, 1901; J. A. Doyle, *The American Colonies previous to the Declaration of Independence*, 1869; Worsfold, *South Africa*, 1895; Gaffarel, *Les Colonies Françaises*, 1893; A. B. Keith, *Responsible Government in the Dominions*, 1909 (rewritten 1927); A. B. Keith, *Imperial Unity and the Dominions*, 1916; Duncan Hall, *The British Commonwealth of Nations*, 1920; H. E. Egerton, *British Colonial Policy in the Twentieth Century*, 1922; *British Year Book of International Law*, 1923-24; Sir R. Borden, *Canadian Constitutional Studies*, rev. edn. 1922 (Toronto); Sir C. Sifton, *The Political Status of Canada*, 1922; F. J. Brady, *Australia Unlimited*, 1918; Sir Vernon Lovett, *History of the Indian National Movement*, 1920; Sir Valentine Chirol, *India Old and New*, 1921; Bishop Whitehead, *Indian Problems*, 1924; Report of the Simon Commission on India, 1930; Sir F. Lugard, *The Dual Mandate in British Tropical Africa*, 1922; Norman Leys, *Kenya*, 1924.

Colophon, a final paragraph found in some MSS. and in printed books before the introduction of title-pages, giving the name of the author, the date and place of production, and the name of the copyist or printer, pious remarks being frequently added in the case of old MSS.

Colophon, an anct. Ionian city in Asia Minor, near the coast, between Lebedus and Ephesus. The birth-place of the poet Mimnermus.

Colophony, or **Common Resin**, or **Rosin**, exudes from certain species of pine in a semi-liquid state. This is the crude article, and consists of the resin proper and turpentine. On distillation the turpentine is obtained and the resin left behind. This is a brittle, solid, and semi-transparent substance, varying from pale yellow to dark brown in colour. It is insoluble in water, but dissolves in alcohol, chloroform, etc. It burns with a smoky flame and melts easily, decomposing if heated much, giving resin-oil as a chief product. It is used extensively in yellow soap manufacture, the sizing of paper, and as a protective in soldering.

Colorado, one of the states in the Mountain Div. of the United States of N. America. It is bounded on the N. by Wyoming and Nebraska, on the E. by Nebraska and Kansas, on the S. by Oklahoma and New Mexico, on the W. by Utah; its latitude is 37°-41° N. and its longitude 102°-109° W., its area about 103,948 sq. m.,

and its pop. in 1930 was 1,035,791. The Indian pop. is 1,383. C. is crossed from N. to S. by ranges of the Rocky Mts., having many peaks upwards of 14,000 ft. in altitude; Blanca, the highest, is 14,465 ft., and more than a hundred peaks are estimated to exceed 13,000 ft. Six of the many passes which cross the ranges are at an altitude of upwards of 12,000 ft.; the Argentine Pass is at a point 13,000 ft. high. Railways cross many of the passes, traversing valleys and cañons in their course and presenting examples of great engineering skill. The Denver and Rio Grande Western Railway crosses Marshall Pass at 10,856 ft., and in 1928 the Moffat Tunnel, 32,150 ft. long, was opened under James Peak. In the central mountain region are the marvellous *parks* or rich mountain valleys, cañons, and hot springs which have so often been described. The eastern rivers of the state belong to the Mississippi valley, the western to the Colorado R. Of the former the most important are the S. Platte, the Arkansas, and the Rio Grande del Norte, draining the Atlantic slope; while to the latter belong the Bear and the Gunnison or Grand rivers, which drain the Pacific slope. The climate of C. is very salubrious and regular; its atmosphere is remarkably dry, rendering sojourn there most beneficial to consumptives and asthmatics. Its many medicinal (chalybeate, sulphur, and soda) and thermal springs, too, contribute to make the state a very valuable health resort. Agriculture is the principal industry; mining and cattle raising coming next in order. Until 1910 C. was the leading state for the production of gold, then, however, it was outstripped by California; Montana, Utah, and Nevada alone surpassed it in output of silver. Coal also is produced in large quantities, the state being eighth among all the coal-producing states and first among those W. of the Mississippi. C. coal has been in very great demand for the past twenty years for the railways between C. and the Mississippi; its 'coking coal' has become important in the manufacture of steel and iron. The annual output of coals is 10 million tons; zinc 27,000 tons; lead 22,000 and copper 3500. Other minerals are manganese, radium, and tungsten. The production of petroleum is nearly 3 million barrels a year. The development of irrigation has made agriculture prosperous, there being nearly 60,000 farms with a total area of 24 million ac., a third of which is devoted to crops and two-thirds to pasture. Wheat, oats, maize, barley, hay, potatoes, and

beet-sugar are the staple agricultural productions. The locust and the C. potato-beetle have hitherto been very inimical to the labours of the agriculturist, but headway is being made against these pests. The 1920 census valued crops at 181,065,239 dollars, and this surpasses mineral production valued at 51,217,038 dollars. Stock-raising is mostly confined to sheep and cattle, and the export of dead meat is an important industry. Part of C. was acquired by the U.S.A. from France in 1804 and part from Mexico in 1848. In 1858 the discovery of gold brought settlements

antennæ, and the larva is a fat orange-coloured creature with three legs. Like most of its family, the beetle feeds on vegetable matter in both larval and imaginal states, and in the middle of the nineteenth century it destroyed the whole of the potato crops in some parts of America.

Colorado Desert, an immense desert in the S. of California, U.S.A., situated to the W. of the Colorado R. It contains the Coahuilla Valley, the lowest part of which once formed the San Felipe Sink, about 300 ft. below the level of the sea. In 1891 the flooding



[Courtesy of Santa Fe Rly.]

IN THE CAÑON OF THE COLORADO RIVER

of English-speaking people to the district; these pioneers came from Kansas, Nebraska, and Missouri. Immigration went on in a continuous stream during 1860-2, when it was checked for some years by the warlike attitude of the native Indians, to be resumed again in 1865. C. was admitted as a state in 1876. The population is of mixed origin, but is largely made up of immigrants from the older American states; there is a small Spanish-speaking colony in the S. The chief towns are Denver, state capital, pop. 287,861; Pueblo, 50,096; Colorado Springs, 33,237.

Colorado Beetle, or Potato Beetle, a N. American member of the family Chrysomelidæ. It is a small, oval-shaped insect, with short club-shaped

of the R. Colorado formed a lake of 8000 sq. m. in the Coahuilla Valley. This to some extent dried up afterwards.

Colorado River, a large and remarkable riv. of South-Western U.S.A. It is formed by the union of the Green R., which rises in Wyoming, and the Grand R., which rises in Colorado, where it is known as the Gunnison. Before its junction with the Grand R. the Green R. receives the Yampuh and the White rivs., and then flows for 150 m. without any further important augmentation; the Grand R., which drains a large portion of Colorado, receives the Bunkara and the Dolores. The united stream flows through Utah, receiving there the San Juan, and then passing through Arizona it is joined by the

Colorado Chiquito, or Little Colorado, the Bill Williams, and the Rio Gila, all from the left. From a generally southerly direction the riv. turns due W. to cut through the mountain ranges, then again due S., entering the Gulf of California after a course of about 2000 m. The C. R. is one of the most unique in the world by reason of the wonderful channel it has carved out for itself. It flows for miles at a time at the bottom of a deep trench or cañon, which it has cut out through stratum upon stratum of rock. The walls of these cañons are often from 4000 to 7000 ft. high, sometimes rising sheer from the stream; sometimes there has been a fall of rock which breaks up the perpendicularity, and which now and then gives rise to a strip of fertile ground. The most remarkable of these ravines is the Grand Cañon, which is the most extensive and unique not only of the Colorado cañons but of any in the world. This occurs after the junction of the Colorado Chiquito with the main stream. The riv. makes its way for about 200 m. through a great plateau, and the Grand Cañon is the result. Further down is the Black Cañon, whose height is about 1000-1500 ft., and whose length is 25 m. In this district are to be found numbers of abandoned prehistoric dwellings, some on cliffs in the cañons, others on high ridges. This seems to indicate that at some distant time it was more adapted for the support of human life than it is now. Navigation of the C. is possible only for about 600 m. Tortoises abound at the mouth of the river in April and August.

Colorado River, Texas, U.S.A.; rises in the table-lands in the N.W. by many heads, the chief being N. Fork and Salt Fork; flows S.E. for about 650 m., entering the Bay of Matagorda just S.W. of Matagorda. Chief towns on its banks: Austin (state capital, at the head of steamboat navigation), Bastrop, and La Grange.

Colorado Springs, cap. of El Paso co., Colorado, U.S.A., 65 m. S.E. of Denver. It is a favourite summer and health resort, standing in lovely scenery, at an altitude of 6000 ft., and sheltered by mountains on the N. and N.W. The climate is mild, and in the vicinity are the Manitou mineral springs, and the Garden of the Gods, a district of red sandstone peaks. There are sawmills and a trade in cattle. Pop. 33,237.

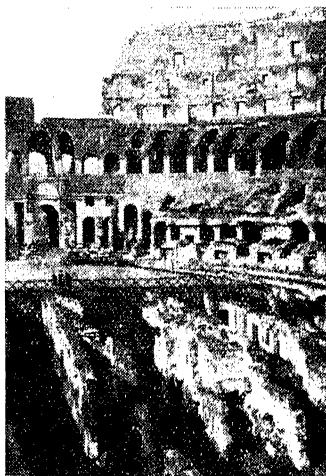
Colorado University, an American state institution for the higher education of both sexes, founded in 1876 at Boulder, Colorado, and formerly opened in 1877. In recent years, as the faculties have increased in

number, the enrolments have also largely increased, and in 1929 there were approximately 3000 students. In addition to the library of over 210,000 volumes, there are numerous pamphlets and a large collection of maps.

Colorno, a tn. of Parma prov., Emilia, Italy, on R. Parma, 59 m. N.E. of Parma. Pop. 2500 (commune, 7000).

Colossal Cavern, a cavern, Kentucky, U.S.A., whose entrance is $1\frac{1}{2}$ m. from the Mammoth Cave; its formation is due to the chemical and mechanical action of water; it has a number of domes and pits.

Colosseum, the name given to a celebrated amphitheatre in Rome, one of the most important monuments of Rom. antiquity. It was begun by Vespasian, finished in A.D.



[Canadian Pacific

THE COLOSSEUM, ROME

80 by Titus, and was known originally as the Flavian amphitheatre, Flavius being the family name of these two emperors. The name C. was first employed by Bode in the eighth century, in reference, no doubt, to its colossal size; it was the colossal building *par excellence*. The C. was used for combats of gladiators and wild beasts; after the shows the arena was often filled with water and used for nautical displays. It is now in ruins—a gigantic stone carcass. Several times ravaged by fire and

always restored, it served the barbaric pleasures of the Roms. until the end of the sixth century. Since then it has suffered pillage at the hands of the barbarians, has been used as a fortress by brigands of noble Rom. family, has been transformed into a huge quarry, marble for the Forum being calcined there in lime-kilns, and its own stones have been carried away for building purposes. Pope Benedict VIII. saved it from further devastation by consecrating it to the memory of the Christian martyrs and by erecting crosses and oratories within its walls. Popes Pius VII., Leo XII., and Pius VIII. further preserved it by buttressing the walls, etc. In form the C. is an ellipse whose axes measure about 612 ft. and 515 ft.; its height is 160 to 180 ft., and the arena about 250 ft. by 160 ft. It is estimated to have held seats for 37,000 persons and standing room for 20,000 more.

Colossians, Epistle to the, an epistle addressed by St. Paul to the church at Colosse. This epistle is generally believed to have been written in Rome about A.D. 62, on the occasion of the springing up in the church at Colosse of a Judeo-Gnostic heresy. The chief features of this heresy—probably Essenism—are angel-worship and asceticism. The Colossian church was mainly Gentile, and this doctrine was taught by converts from Judaism, who tried to impose its ceremonial observance upon their Gentile brethren. Epaphras, the founder of the church at Colosse, informed St. Paul of this state of things, and in reply the apostle wrote the epistle. In it he combats this invading 'philosophy,' and earnestly contends for the supreme dignity of Christ. The epistle was dispatched by the hands of Tychicus, who also bore the Epistle to the Ephesians at the same time.

Colossus, a word originally used by the Gks. and afterwards adopted by the Roms., to designate statues that were more than life size, and particularly those of gigantic proportions. The name was especially used to signify the celebrated enormous statue known as C. of Rhodes, which was the work of Chares of Lindus, and represented the god Apollo. This figure is about 100 ft. high, took twelve years to erect (292 to 280 B.C.), and cost 300 talents, which is about £70,000. The statue was placed at the entrance to the harbour, but not with a leg on each side as often stated. In 224 B.C. an earthquake cast it to the ground, where it remained until A.D. 672, when Moawiya, a general of Caliph Othman IV. sold it to a Jew

of Edessa who took it away in pieces on 900 camels.

Colotomy, that operation which involves opening into the colon; it is usually performed in cases of stricture.

Colour, a sensation, excited by the action of rays of light on the retina of the eye. Just as sound is due to waves in the air, so light travels along waves in the ether of space. Similarly, just as the ear is not capable of appreciating all the possible frequencies of sound waves, so the eye can only receive sensations of light from a narrow range of the existing light waves. Varying frequencies of air waves produce varying notes, and varying frequencies of ether waves give rise to varying sensations of C. In other words, any simple C. is always caused by a definite frequency or wave of a definite length, and never by any other frequency. Now since light can be examined under the spectrum, it is found that white light is composed of all the varying rays combined in definite proportions. Therefore if the light is reflected back from any body to the eye, without the absorption of any of these rays, the body will be said to be white. On the other hand, if it absorb all rays other than the red, and reflects the red only back to the eye then the body will excite the C. red. Further, if the body absorb all the rays of light and reflect none, then it will appear black, so that the C. of an object may be said to be due to the rays of light which it will not absorb. Again if a body which we call green be viewed under a pure red light, then the body will appear black, because it absorbs all rays except the green, and they are absent. Again a white surface viewed under a coloured light will appear coloured, because it reflects all rays, and therefore if it be seen under a red light it will appear red. Another property of C. which might be mentioned here is that, when a body be held between the light and the eye, it is said to be *translucent* if it transmits the light without absorption and yet appears white. If, on the other hand, it is colourless, it has transmitted the light unchanged, but it is said to be transparent. Similarly it will be said to be coloured if it absorbs some rays and transmits others, so we may say that C. depends upon both the nature of the object and of the light. If it were possible to get light due to one wave frequency alone, then we would get what is known as *monochromatic* light. This, however, is never obtained, for even burning sodium produces two wave frequencies—both in the yellow it is true—but not identical, although they are very close. But though these monochromatic lights

are never obtained, yet, simple and distinctive Cs. are, such as those which may be seen in the spectrum, e.g. red, green, blue, and violet. Now the eye can receive sensations from several light waves simultaneously, but the result is another C., which may not resemble any of the component Cs. Such a mixing of monochromatic lights produces mixed Cs., which may resemble Cs. in the spectrum, or may be white or purple, or any other C. which does not exist in the spectrum. This production of white light from two simple Cs. is an important point. In general it may be stated that white light is produced by the blending of light waves of all visible frequencies, but mixtures of red and greenish-blue, yellow and indigo-blue, greenish-yellow and violet will all produce white light. Any two Cs. which act in this manner are said to be *complementary* to each other. This is worthy of note, and needs explanation, for it is well known that blue and yellow pigments mixed result in a green colour. If, however, the yellow and the blue were pure, no such effect would be obtained. As it is, however, both pigments possess a deal of green light. So, when the pigments are mixed, blue, yellow, and green light are simultaneously reflected to the retina of the eye. But the blue and yellow, being complementary, destroy one another, producing white, which merely dilutes the green which is left. Were Cs. pure, then white would be the resultant, as is the case when pure lights of this description, obtained from any source, are superimposed. C. has three varying properties: it may be said to possess *hue*, *purity*, and *luminosity*. Its hue or tint gives it its name, as, for example, ultramarine and indigo blues. The purity or richness of a C. is determined by the amount of white light which is diluting the tint, and according to its purity we talk of the paleness or deepness of a given C. Again the luminosity determines the shade of a C. and gives it its quality of darkness or brightness. Various theories as to the mode of C. perception prevail. The most prevalent is that evolved by Young and Helmholtz, who believed that the retina consists of three kinds of nervous elements. Each of these is excited only by one C., and it is supposed that there are three physiologically primary Cs. Opinions differ as to what these Cs. are, but we may take them as being red, green, and violet. According to this theory, if the elements sensitive to all three Cs. be simultaneously excited, according to the proportion of excitation of each set of elements,

then the resultant impression may be either a simple C. or white. Similarly, simultaneous excitation of the elements sensitive to green and violet would result in some colour in the spectrum, ranging between green and violet, according to the proportion of the excitation of the two elements. This theory will account for the appearance of consecutive coloured images. For example, if a red object be viewed for a long while, the eye becomes fatigued to red, and in darkness an image composed of green and violet will result in an after image of a pale greenish-blue hue. Viewing an object in white light with the eye fatigued to red, then, causes one to see an intense complementary image coloured by a blend of green and violet. See A. H. Church, *Colour*; C. T. Whitnall, *Colour*; O. N. Rood, *Modern Chromatics*; Capt. Abney *Colour Vision*. See also INTERFERENCE, LIGHT, SPECTRUM, VISION, DEFECTS OF.

Colour, Accidental, see ACCIDENTAL COLOUR.

Colour-blindness (*Achromatopsia*), an affection of the eyes which renders them unable to distinguish certain colours or shades of colour; in an extreme form everything appears grey. C. may be either acquired or congenital. More common to the male than the female sex, it is said to be transmitted from grandfather to grandson. Congenital C. is often accompanied by long-sightedness. There are two distinct forms of C.: in the first, there is no differentiation of colours whatever; in the second the spectrum is shortened at the red end, so that from a distance red is not easily distinguishable, and red, orange, yellow, and green appear green; violet appears blue; in green-blindness the red, orange, yellow, and green are all yellow, or it may be red. As there are various theories concerning the colour-sense, so there are various theories of causation. The grey cells in the brain and the nerve fibres connecting them with the eye are concerned, as are also the rods and cones of the retina and the visual purple. Sometimes the fault is not detected for a long time, and then only by accident, because it is possible for only one eye to be affected, and even with normal sight practice is required for the distinguishing and naming of fine gradations of colour. For true C., no remedy has, up to this time, been discovered. An acute sense of colour distinguishes seven colours in the spectrum, whereas only five or six are visible to the average eye. There are various test-cards used in the Mercantile Marine service and for railways,

which show the colours of the spectrum, and candidates for appointment are required to pick out the various colours as they are named. Holmgren's test consists of matching and naming five finely-matched shades of each of twelve different coloured wools, which are handed over, well mixed up, to the examinee.

Colour Photography, see PHOTOGRAPHY.

Colour Printing is of three styles: relief, intaglio, and lithography. Relief is the oldest style, and includes printing from wood blocks, photo-engraved surfaces, and stereotype and electrotypes plates. Intaglio work began in the fifteenth century, and includes engraving on copper or steel, etching, mezzotint process, and photogravure. Printing in colour may have been practised even before the time of John Gutenberg of Mainz, the reputed inventor of printing, and some authorities think that the Romans used a process of copying by engraving on ivory and then making tinted reproductions on canvas by means of plates. Even if this is mere speculation, as indeed is the assumption that C. P. was known in the Far East before the eighteenth century, there is extant a fifth-century work, the 'Gospels of Ulphilas,' now in the University Library, Upsala, the text of which is in gold and silver on vellum of a mauve hue. There are also in the S. Kensington Museum some examples of fabrics whose patterns would appear to have been made from wood blocks in the eleventh century; and again, in the fifteenth century a Venetian decree was issued for the protection of the local industry of making coloured playing-cards and pictures of saints. But according to the leading authorities, notably R. M. Burch, C. P. had its origin in attempts to imitate by mechanical means, the colour decoration of the MSS. which furnished the text for the earliest printed books (see ILLUMINATION OF MANUSCRIPTS). It is doubtful whether, in the earlier period of C. P., any separate pictures in colours, as distinct from rubricated typography and other coloured type, were produced, one difficulty, however, being to distinguish, in the extant MSS., where the printer's work ends and hand-work begins. The chief printers in colour at this period were those of Venice, London, Mainz, Paris and St Albans. The sixteenth century, however, saw the rise of the art of printing pictures in colours by the method which is known to this day as 'chiaroscuro' (q.v.). Among the earliest printers

in chiaroscuro were Ugo de Carpi, who is believed by older writers to have been the inventor of the process, and Jost de Necker, an Antwerpian, believed by Bartsch to have invented the process; but there are other names anterior in date to these, including Mair of Landshut, a Ger. artist, and Francisco Dentato, a Venetian, who printed in a dark brown colour; but it was also practised by many of the great masters of engraving, painting and drawing, who were contemporary with the inventor, whoever he was, of the process. These included Burgkmair, Cranach, Dürer, many of whose drawings, engravings, and woodcuts suggest chiaroscuro work. Colours in chiaroscuro printing were evidently applied by the press at this time, hand-colouring or stencilling being a later process used to supplement the press colouring and chiefly for colouring playing-cards, though to some extent it was used in the sixteenth, seventeenth, and eighteenth centuries for book illustrations. The art of producing prints in the original chiaroscuro style appears to have died out with John Skippe, of Ledbury, about whom little is known beyond the fact that he was educated at Merton College, Oxford. Skippe, who lived in the eighteenth century, used three or four tone blocks, generally browns, ochres, or olive greens in varying shades. With the eighteenth century comes the rise of intaglio-printing processes. *Mezzotint engraving* was invented by Louis van Siegen, an officer in the service of William VI., Landgrave of Hesse, in the seventeenth century, but the printing of mezzotinted plates is a late eighteenth-century art, and together with it, two other processes—*stipple engraving* and *aquatinting*—were invented. All these are 'grain' processes, i.e. the grain is formed by a series of dots so arranged as to conform to the planes and modelling of the subject (see under ENGRAVING). The first engraver to practise stipple work was Jean Lutma, a seventeenth-century Dutch goldsmith, of whom several plates are extant. Notable French engravers in Stipple were Jean François, of Nancy (b. 1717), Louis Bonnet (b. 1743), and Gilles Demarteau (b. 1722), the two latter being engravers in the crayon style. The first English stipple engraver was William Wynne Ryland (b. 1732), who, after completing his training in Paris, became Engraver to King George III. Improvements on the process were made by a London engraver, Robert Laurie (b. 1749), who invented a method of producing

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copper-plate pictures in colours at one impression, by inking the plate with stump brushes—a combination of mezzotint and stipple designed to produce book illustrations at a low cost. *Aquatint*, or the latest of the intaglio engraving processes not dependent on photography, is really tone etching, the graving being effected by the use of acid, so that there need be no lines. The authorities ascribe the invention to Jean Baptiste le Prince, a French painter and engraver, who *d.* in 1781, and the date of the first adaptation of the aquatint method to C. P. as about 1768. In England, the earliest exponent was Paul Sandby, (*b.* 1725), whose work was in monochrome only. Other notable names in the art of aquatinting are P. L. Debucourt, Court painter to Louis XVI., whose 'Promenade in the Gallery of the Palais Royal' is famous; J. F. Janinet (*b.* 1752), a fine draughtsman and designer; and J. T. Prestel (*b.* 1739), a Ger. artist. Some of the most familiar eighteenth-century Eng. prints in colour are Wheatley's 'Cries of London,' of which modern copies are still produced. Japanese colour prints, made from wood blocks, were well advanced by the early eighteenth century, the greatest of the earlier exponents being S. Harunobu, who was imitated by Utamaro, the latter's prints initiating the craze for Japanese prints which is not entirely passed even to-day. Hokusai (*b.* 1760) was the most famous of all Japanese colour-print artists, his *Mangwa*, a book depicting Japanese customs, best exemplifying his work in black and red. In the nineteenth century there was a notable revival of the old chiaroscuro process in a new form known as *chromo-xylography*, and the most famous name in this connection is that of George Baxter (*b.* 1804), the son of a Lewes typographer, whose process, really only printing in colours from wood blocks, consisted in colouring an impression from an outline or key block, which was either a copper or steel plate, or a litho stone, by successive impressions from colour blocks of wood or metal. He certainly achieved his object, which was to produce ornamental prints in colours which resembled highly coloured painting in water colour or oils, and for some time he held the field alone. Later names in chromo-xylography were those of Charles Knight, the pioneer of cheap illustrated magazine literature, and whose coloured plates for *Old England Worthies* (1847) were well known; George C. Leighton (*b.* 1826), the printer-publisher of the *Illustrated*

London News, in 1884; Henry Vizetelly (*b.* 1820), who engraved pictorial subjects for popular books; Edmund Evans (*b.* 1826), the best-known of all the wood engravers for colour work except Baxter, whose coloured line engravings, *e.g.* those after pictures by Kate Greenaway, are remarkable for daintiness; and who will always be remembered as the pioneer in the production of cheap colour-illustrated children's books; Benjamin Fawcett (*b.* 1808), whose coloured prints in the illustration of the books he published on British birds, moths, and butterflies exemplify his process of fine printing in colours; and the Knöfler brothers (*b.* 1859 and 1861) of Vienna, whose beautiful colour prints soon became familiar in the windows of London art dealers. The nineteenth century also witnessed the introduction of an entirely new colour-printing method, *chromo-lithography* (For the principle see under LITHOGRAPHY). The application of the principle of lithography to C. P. consists, as in chromo-xylography, in first preparing the design, and determining the number of tints in which it is to be reproduced, and then drawing on a litho stone that portion of which is to be in a particular colour, and so on, with each of the other colours, the print being made up by the successive impressions from all the colour stones. This process is considered to begin with the issue of the *Pacis Monumentum*, a record of the facts of the Peace of 1815, by J. A. Barth, of Breslau, produced in 1816. Other notable names in the earlier period of chromo-lithography are those of Engelmann, Hullmandell, Owen Jones, Michael Hanhart, and William Day. The later stage is chromo-lithography, dating from the middle of the nineteenth century, when lithographic printing machinery was introduced. After this comes the adaptation of photography to chromo-lithography, said to have been suggested by Mr. Burnett, a member of the Edinburgh Photographic Society in 1857—called *photo-chromo-lithography*, and later perfected under the name of *Photochromy*. A 'photochrom' is a colour photograph, the base of which is generally a collotype print, produced direct from the film or through the medium of a transfer on to stone. Modern French chromo-lithographs are among the best examples of this process, especially those of Pierre Vidal. Modern colour processes in printing are developments of processes for making photography the means of reproducing natural colours as far as this is possible, and the early years of the twentieth

century have seen many improvements in working the three-colour block process, while in America, especially the four-colour process has been developed. For further details consult R. M. Burch, *Colour Printing and Colour Printers*, 1910. See also *Journal of the Photographic Society*, Nov. 16, 1863, Jan. 15, 1864; Malcolm C. Salaman, "Old English Colour Prints" *The Studio* (Winter number, 1909); *Process Year Book*, 1907-8; Vojt Preissig, *Zur Technik der Farbigen Radierung u. des Farben Kupferstichs* (Leipzig, 1909); W. Gamble, *Line Engraving*, 1909; Mrs. Frankau, *Eighteenth-century Colour Prints* (1902-4); C. W. Hackleman, *Commercial Engraving and Printing* (Indianapolis, 1921).

Colour-sergeant (so called because he attended on the colours), was the non-commissioned officer of highest rank in a British infantry company. He wore on his sleeve a badge of crossed colours over the usual sergeant's chevron. He was the channel by which communication was kept up between captain and men. The rank was abolished in 1912.

Colours, Military, the flags and standards borne by most infantry regiments and battalions, and sometimes also by other troops. From the very earliest times banners or similar devices have been used by fighting bodies both on land and sea to act as a rallying-point and a signal. From the very fact of this practical value as a rallying-point, the banner or standard began to exercise a moral influence. This is already seen in fully-developed form in the days of the Rom. empire, when the loss of the eagle was the greatest disgrace a legion could sustain. Similarly, the flags of later times became, as it were, an embodiment of the spirit of the regiment, the link binding the soldiers of the time with the veterans of the past. The loss of the standard was the break-up of the regiment. The colours, then, were invariably taken into battle until the last quarter of the nineteenth century, but now the systems of modern warfare have led to the colours being left at home by British regiments. According to the present arrangement, dating from the time of Queen Anne, each British regiment or battalion has two colours, the king's colour and the regimental colour. The former is a Union Jack, except in the case of footguards. The regimental colour is a flag of the same colour as the facings of the regiment, with the name and titles of the regiment, together with the names of its victories and exploits, blazoned thereon. Both colours measure 3 ft. 9 in. by 3 ft.,

the stave being about 8 ft. 6 in. Lancers, hussars, rifle regiments, engineers, and artillery do not carry colours.

Colours of Animals. The greatest use which the colour of an animal has is that of protecting it against its enemies, or in some cases enabling it to attack its prey without being first discovered. In considering this question what must be taken into account is the general effect produced by contrasting colours on the same animal as well as by the same colour with no contrasts. The general rule is that the colour of an animal is very similar to that of its surroundings, either the earth or the plants near which it lives, thus enabling it to escape detection in the case of 'protective resemblance,' or to catch its prey in the case of 'aggressive resemblance.' Usually the upper part of an animal's body is dark in colour, while the under part is much lighter, the reason for this being that the dark parts appear lighter because of the light shining on them, and the light under parts tend to dispel the shadows, thus doing away to a certain extent with the solid appearance of the animal and helping it to become somewhat invisible. Some animals, however, are the exact opposite of this. The resemblance of the animal to the part of the earth on which it lives may be produced by colouring identical to that earth, as is seen by the colour of all animals which inhabit desert regions, their coats resembling the sand in colour, or by a decided contrast. The zebra is an interesting example of the latter, being rendered invisible in the moonlight on account of its strongly differentiated patches of colour, and so being preserved from its enemy, the lion, whose habit it is to hunt by night. In the case of the tiger the resemblance is found between his stripes and the jungle in which he lives, and in this way he is enabled to track and kill his prey before being discovered. The fox also illustrates this 'aggressive resemblance,' and in snowy regions the coats of these animals and those of some others turn white to match the snow. Spots also are a great help to the animals so marked, owing to the spots of sunlight blending with their spotted coats. Another characteristic, peculiar to mimetic insects, is that of resembling something else which would not attract the enemy in any way. Thus, some butterflies exactly resemble a withered leaf on the under side of their wings, and in some instances insects are exactly like the twigs of a tree. Other animals, again, use their colour with

quite a different object in view—namely, to act as warnings to their enemies. The skunk is an excellent example of this. It is, in itself, very conspicuously coloured, and makes no attempt to conceal the fact, but as in the case of other animals so clothed, its colour is accompanied by a very disagreeable quality—the power of emitting a liquid with a most objectionable odour, so that no enemy would continue to attack it. This is known as ‘warning coloration.’ In certain cases a conspicuous colour helps to keep the members of the same species together for their own protection, but this is not nearly so common. Another method pursued by some animals is that of mimicry. This consists in resembling some other animal which is very unpleasant to its foe, and in this way enabling itself to escape unhurt. This is the case with certain flies which resemble wasps for the purpose of protecting themselves. This mimicry is sometimes that of colour, and at others that of form or movement. The colours of animals have also been shown to play a large part in sexual selection. This is seen very clearly in the case of some male animals which are endowed with particularly brilliant and attractive colours, while the females are quite unattractive. Darwin has pointed out that this is due to the fact that these colours attract the females. The cause of the colours in animals may be due either to their structure or to certain pigments. In the case of some birds, and also of some fish, the colour is due, in part, to the effect produced by the light on the animals, and in part to a certain pigment which is also affected by the light, while in some insects it is due to uric acid. In some animals a pigment exists which produces a greenish colour, and in certain cases chlorophyll is found with this colouring, apparently being formed by means of the food. There remains, however, a great deal to be discovered with regard to these pigments as at the present time the knowledge of them is somewhat indefinite. See Henry Drummond, *Tropical Africa*, 1888; Edward Bagnall Poulton, *The Colours of Animals, their Meaning and Use*, 1890; Frank E. Beddard, *Animal Coloration*, 1892; Alfred Russel Wallace, *Darwinism; An Exposition of the Theory of Natural Selection, with some of its Applications*, 1889.

Colquhoun, John (1805–85), a Scottish writer on sport, b. in Edinburgh; educated at the University there, and served in the army, 1829–34. His best work, *The Moor and the Loch*, first appeared in 1840, and he also wrote: *Rocks and Rivers*, 1849;

Salmon Casts and Stray Shots, 1858; and *Sporting Days*, 1866.

Colt, Samuel (1814–82), an American inventor, b. at Hartford, Connecticut; went to sea, and later lectured on chemistry. In 1835 he obtained his first patent for a six-barrelled rotating breech revolver, and founded the Patent Arms Company at Paterson, New Jersey, for the manufacture of these weapons. In 1852 he built the enormous works of the Colt's Patent Fire-Arms Manufacturing Company at Hartford.

Coltsfoot, see TUSSILAGO

Coluber, a genus of ophidian reptiles. The fifty odd species are all non-poisonous, and occur in Europe, Asia, and America. The eye is large, the pupil round, the scales are either smooth or keeled. The species attain a great length and are oviparous. *C. quatuorlineatus*, a native of S. Europe and the Tyrol, is 6 ft. long; *C. longissimus*, the Aesculap snake, attains a maximum of 5 ft.; *C. leopardinus* is a beautiful snake found in Europe and Asia Minor.

Columba, Columbidae, see PIGEON.

Columba, St. (521–597), known also as Columcille and Colm, is said to have been b. at Gartan in co. Donegal, in the N. of Ireland, of very noble birth. He early learned the principles of asceticism under St. Finnian of Clonard, and in 546 was ordained priest. About four years later he founded the great monastery of Durrow, as well as many smaller ones, including that of Derry. In 562 he was excommunicated by an Irish ecclesiastical synod, on the charge of having caused the sanguinary Battle of Culdremhne. In consequence of this he set out in the next year and with twelve followers made his way to the little is. of Hy or Iona, off the W. coast of Argyllshire, and planted a monastery there. He then settled down to the work of his life, the conversion of the Picts dwelling beyond the Grampians. Through his teaching, example and miracles the work progressed favourably, and C. settled monasteries in various parts, all subject to Iona and a rule which he himself compiled. In this strenuous supervision and in visits to his native land the saint passed some thirty-five years, during the last five of which his health was fast failing him. Then, early in the morning of June 9, 597, when matins had just been chanted, he breathed his last, kneeling before the altar of his own church of Iona. Tremendous energy was the keynote to C.'s character. Adamnan tells us that he could not bear to remain idle a moment, and the somewhat warlike aggressiveness of some of his acts may be put down to the same cause. His

life was austere in the extreme, yet everywhere his cheerfulness and virtue predisposed men in his favour. See Adamnan's *Vita S. Columbae*, ed. J. T. Fowler, 1894; Smith's *Life of St. Columba*; Montalembert's *Monks of the West*, vol. iii., 1861; and Skene's *Celtic Scotland*, 1877.

Columban, or Columbanus (543-615), an Irish monk and saint, b. in Leinster of a noble family. He entered the monastery of Bangor in Ulster, studying there under Saint Coemgall. When a man of middle age he led a band of monks on a missionary expedition to France, and preached with much success in Upper Burgundy, founding the two monasteries of Luxeuil and Fontaines. He was finally expelled from the latter by Thierry, King of Burgundy, whom he had offended by his unsparing denunciations of vice, and after visiting the courts of Clotaire and Théodebert went into Italy. Here he settled among the Apennines and founded the monastery of Bobbio, where he d.

Columba Noachi (Noah's Dove), a small constellation in the S. hemisphere, close to Canis Major and Lepus. Puppis, Pictor, and Caelum are also near by. Gould believes that it was so named as early as the sixteenth century.

Columbarium (Lat. *columba*, dove), the name of the niches or buildings for the storage of sepulchral urns containing ashes of the dead. The fancied resemblance between a dove-cote and the niches round the walls of Rom. burial-chambers gave rise to the name. Such tombs were mainly used for the poorer classes, and were erected by wealthy families for their slaves, or by funeral associations under the empire. Examples near Rome are those of the Vigna Codini at the Licinian Gardens. The 'ustrina' were attached to the 'columbaria.' In modern times 'columbarium' means a room connected with a crematory, provided with niches for the funeral urns.

Columbia, or Oregon, with the exception of the Yukon, the largest river of the W. side of America, rises in British Columbia, on the W. slope of the Rocky Mts. Its course at first is S. through various lakes, till it reaches the N. border of Washington. Here it receives the Clark's Fork on its l. b. It then continues its course irregularly to the Oregon frontier, before reaching which it receives, on the l. b., the Spokane R. and the Snake R., the latter being its largest tributary. It then turns W. once more, and flows along the N. border of Oregon, casting itself into the Pacific by an estuary about 35 m.

long and from 3 to 7 m. wide. The C. passes through a mountainous country, and its scenery is remarkable. The salmon fisheries flourish, and there is a large canning station at the mouth of the river. The falls, however, make clear navigation possible for only 160 m. up to the Cascades. Above these there is another navigable stretch of 50 m. reaching to Dalles. The C. is 1400 m. long, and its basin has been computed at nearly 300,000 sq. m.

Columbia: (1) Cap. city of S. Carolina, U.S.A., on Congaree R. just below the falls; it is navigable to this point. C. is an important railway centre, has manufacture of cotton goods, cars, large iron-works and trade in cotton. The state University was founded in 1805. There are many fine public buildings. It was occupied by Gen. Sherman in Feb. 1865, and much of it burnt. Pop. 51,581, many coloured. (2) City of Lancaster co., Pennsylvania, U.S.A., on the Susquehanna R., first settled by Quakers in 1726. Makes clothes, has iron-works and trade in timber. Pop. (1920) 10,840. (3) Cap. of Maury co., Tennessee, U.S.A., on the Duck R. 40 m. S.W. of Nashville, in a fine farming country. Many mules are raised and there are flour mills, etc. There was fighting here during the civil war. Pop. (1920) 5526. (4) Cap. of Boone co., Missouri, U.S.A.; here are the University of Missouri and numerous colleges. Pop. 14,967.

Columbia, British, see BRITISH COLUMBIA.

Columbia, District of. The seat of Gov. of the U.S.A. It is an artificially rectangular piece of territory of some 62 sq. m., within the ambit of the state of Maryland. After the American colonies achieved their independence and formed themselves into a new nation, Philadelphia was at first the capital. But as there were in the beginning sharp jealousies between the various states, it was deemed wise to establish a capital about midway between the N. and S. states along the Atlantic sea-coast, this territory at that time comprising all the then U.S.A. Originally an area of 100 sq. m. was ceded for this purpose by Maryland and Virginia, but in 1846 Virginia's portion S. of the Potomac was given back to that state. The Potomac R. flanks the district for its entire length to the S., and also flanks part of the perimeter of the city of Washington. Since an Act of Congress of 1895 the city of Washington has been coextensive with the District. The District was formerly established by Acts of Congress in 1790-1.

Under these Congress itself assumed entire jurisdiction. Congress first met in the District in 1800. John Adams, second President of the U.S.A., was inaugurated in Philadelphia, but was the first Chief Executive to live in the White House in Washington. Thomas Jefferson, third President was the first one to be inaugurated in Washington. The feature of the District is that the gov. is by Congress directly as to legislation and by three Executive Commissioners named by the President and confirmed by the Senate. Each house of Congress has a special committee on District affairs. The result is that the District, and Washington in particular, have not grown up in a haphazard fashion, but according to a fixed plan, with the determination to make the capital one of the most beautiful in the world. Another peculiarity about the District is that persons born there are practically disfranchised. There are no municipal elections, because the gov. is in the hands of the Executive Commissioners and Congress. In Presidential elections natives of the District have no vote. The total pop. is 486,869, of whom about 25 per cent. are negroes. There are many industries in the District, goods being produced primarily for local consumption. The revenue of the District is raised by real estate, personal and business taxes and from Treasury grants in aid. There are five Universities: Georgetown, under the Jesuits; George Washington, non-sectarian; Howard, for coloured students; Catholic University of America; and the National Methodist University.

Columbia University, New York City, U.S.A. Originally founded as King's College in 1754, and reorganised as C. College in 1784. It is one of the most important educational institutions in America. The leading residential colleges are Columbia for men undergraduates, Barnard (founded 1889) for women; Teachers; Seth Low Junior; and St. Stephens; which together house approximately 38,000 students. The School of Journalism was founded in 1912, and the Columbia University Press established 1903. The latter has issued numerous important publications. The students publish many periodicals in connection with their various faculties. The combined libraries (1930) amount to 1,025,000 vols. The students, including the Extension Dept., were 25,359 in 1930, and during the summer session of five weeks in that year 12,720 attended lectures. The faculties in-

clude Arts, Political Science, Philosophy, Pure Science, Mines, Engineering, Chemistry, Law, Medicine, Pharmacy, Architecture, Journalism, Business. There is a teaching staff of 1934, and the president is Nicholas Murray Butler, Ph.D., LL.D., D.Litt. **Columbine**, or *Aquilegia vulgaris*, a British species of Ranunculaceae which grows wild and is cultivated as an ornamental plant. The leaves of the flowers are arranged in whorls, the five sepals are petaloid, the petals are prolonged into long spurs and are visited by long-tongued insects for the honey they contain; the stamens are numerous, and are arranged in whorls of five. The andrœcium matures before the gynœceum, and fertilisation is effected by means of humble-bees.

Columbine (from It. *columbina* and Lat. *columba*, a dove), the short-skirted, fairy-like maid who, in all pantomimes, dances with the Harlequin, her lover.

Columbium, an alternative name for the chemical element Niobium (*q.v.*).

Columbus: (1) Cap. of Ohio, U.S.A., on the Scioto It., 103 m. N.E. of Cincinnati. The streets are handsome and broad, and there are splendid buildings, including the Capitol, the State University—one of the best attended in the U.S.A. with 10,000 students and a Stadium with 72,000 seats, and public libraries with 600,000 volumes. It is an important industrial centre. Iron and steel works, manufactures of machinery, automobiles, cigars, etc. There was a disastrous flood in 1913, and the City Hall, which has since been replaced, was destroyed by fire in 1921. C. was named after Christopher Columbus because without him or some other discoverer it could never have come into existence. Pop. 290,564. (2) A city of Georgia, U.S.A.; one of the leading industrial centres of the S. of the U.S.A. The falls of the It. Chattahoochee generate electricity. There are manufs. of cotton goods, iron foundries, etc., and a large export of cotton. The first cotton-mill worked by electricity was in C., and artificial ice was first made on a commercial scale and industrial training provided here by public schools. Pop. 43,131. (3) Cap. of Bartholomew co., Indiana, U.S.A., on the Big It., has leather and machinery industries and saw-works. Pop. 9935. (4) Cap. of Lowndes co., Mississippi, U.S.A., on the Tombigbee, has timber and cotton industries. The Mississippi College for Women, with 1500 students, is here: 1500 soldiers, victims of the Civil War, were buried in Friendship cemetery.

Pop. 10,743. (5) A city of Platte co., Nebraska, U.S.A., raises agricultural products and has several factories. Pop. 6898.

Columbus, Bartolomeo, brother of Christopher. An excellent cosmographer, who produced many ingenious globes, maps, and sea charts. He is said to have been deputed by Christopher to lay his project of exploration before Henry VII. of England, but to have been delayed by pirates till after the patronage of Ferdinand of Spain had been obtained. He took part in his brother's discoveries, and was honoured together with him in 1493. In 1494 he went to St. Domingo, of which he became governor, and where, after several expeditions, he *d.* in 1514.

Columbus, Christopher (Latinised form of It. Cristoforo Colombo; Sp. form, Cristobal Colon) (c. 1436–1506), a famous navigator and discoverer of the New World, *b.* near Genoa, where his father was a woolcarder.



CHRISTOPHER COLUMBUS

The exact date of his birth is uncertain, authorities varying from 1436 to 1457, but 1446 is the most probable. It is said that for a time he followed his father's trade, but he was certainly at sea before the age of fifteen. The accounts of his early voyages are doubtful and obscure, but they extended over a vast range, from the Levant to Iceland. In 1470 he was wrecked off the coast of Portugal, near Cape St. Vincent, but he came ashore on a plank, and settled in that country. Before 1480 he had married Telepa Moñiz, the daughter of Bartholomew Perestrello, an important navigator and captain, first governor

of Porto Santo. For some years C. had been in correspondence with Paolo Tascanelli, the Florentine astronomer, as to the possibility of reaching Asia by sailing westward. This project was present in his mind as early as 1474, and had been fostered by the reports of seamen, rumours heard in Iceland, and the surmises of the ancients. His hypotheses were fairly correct. He realised the spherical form of the earth, but he under-estimated its circumference. When, in addition to this, he over-estimated the size of Asia, his idea of the distance he must go was about one-third of the correct one. It was necessary for him to find some sovereign to support him in his enterprise. He applied first to John II. of Portugal, and then by letters to Henry VII. of England. He visited Spain and applied to the powerful Dukes of Medina Sidonia and Medina Cell, and this latter nobleman referred him to Queen Isabella. After some seven years of persuasion, journeying, and doubt, the Genoese at last succeeded in obtaining the help he required. On Aug. 3, 1492, he set out from the town of Palos with one ship of 100 tons, the *Santa Maria*, and two caravels, the *Pinta* of 50 tons and the *Niña* of 40 tons. He first went to the Canary Is., and thence, on Sept. 6, the expedition really set out. His men were insubordinate and discontented from the beginning. Whatever happened they interpreted in an adverse manner, and the variations of the magnetic needle reduced them to great terror. On Oct. 12 an is. was sighted, and named by C. San Salvador, now probably Watling Is. The expedition then cruised in the neighbourhood, discovering Cuba and Hispaniola (Haiti). On this latter is. the *Santa Maria* went aground, and had to be abandoned, and C. was compelled to return to Europe with the two caravels. Here he was received with the greatest enthusiasm, and honours were showered upon him. After six months in Spain, he started westward once more, on Sept. 25, 1493, with a larger squadron and 1500 men. On this voyage the is. of Dominica was discovered. The great explorer, however, found the task of governing his colonies beyond his power, and after vexatious quarrels and illness, he returned to Spain in 1496. In 1498 he made his third voyage, on which he reached the mainland of S. America, though he had coasted it as far as the Orinoco before he discovered its character. Many complaints had meanwhile been sent home from the colonists, and Ferdinand withdrew his favour from C. In 1499 a governor was sent

out to supersede him, and he himself returned to Spain in chains. On his arrival the tide of popular feeling again turned in his favour, and he was released with fresh honours, and in 1502 he made his fourth and last voyage in search of the passage to India. After exploring the Gulf of Mexico he returned to Spain, and *d.* in none too prosperous circumstances at Valladolid. See Fernando Columbus's Life of his father (English ed., 1867), and biographies by Washington Irving (1828), Helps (1869), Markham (1893), and Adams (1892). See also R. H. Major's translation of his *Select Letters* (Hakluyt Society), 1847; Harisse's *Christophe Colomb*, 1884; and *Christophe Colomb devant l'histoire*, 1892.

Columbus, Diego (c. 1478-1526), son of Christopher C., *b.* at Lisbon; in 1484 went to Spain with his father, and later obtained a post at court. In 1506, at his father's death, he became admiral of the Indies; in 1509 went to Española as governor of the Indies; in 1520, after long litigation, inherited his father's viceroyalty. He was recalled from the Indies in 1523, and *d.* at Montalban.

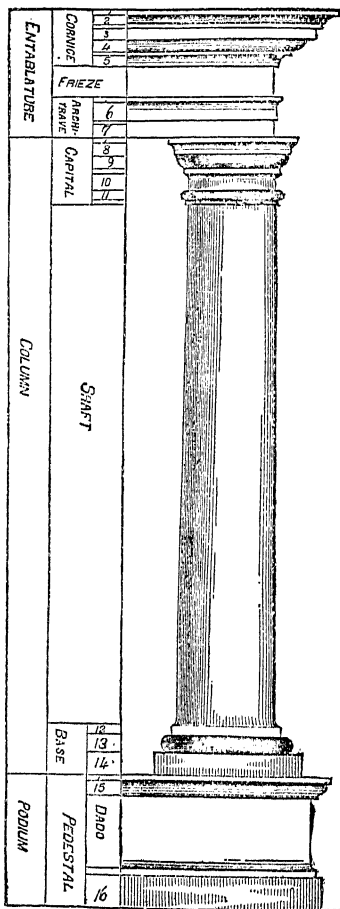
Columbus, Giacomo, or **Diego** (c. 1468-1515), youngest brother of Christopher, *b.* at Geneva; went to Spain at the news of his brother's discovery, and accompanied him on his second voyage. In 1493 he commanded the commission entrusted with the temporary gov. of Española, but was unsuccessful, and was sent back to Spain as a prisoner in 1500.

Columbus, Samuel (1642-79), a Swedish author. A favourite pupil of G. Stjernhjelm. He is especially noted for his hymns, which are the first genuine ones in the language. Among his works are: *Den Bibliske Verld* and *Odæ Sueticæ*, in which he follows the German poet, Opitz. See Atterbom's *Svenska diare och Skaldar*, 1841-43.

Columella, Lucius Junius Moderatus, a Latin writer on agriculture of the first century A.D. Born at Gades in Spain, lived partly in Syria, but chiefly at Rome; probably *d.* at Tarentum. He was a contemporary of Seneca. His chief work, *De Re Rustica*, the fullest ancient treatise on practical agriculture, consists of twelve books in dactylic hexameters, and is addressed to a certain Publius Silvinus. The style is easy and copious, but the information is often of doubtful accuracy and seems to have been derived from books.

Column, in architecture, a vertical supporting member, cylindrical or approximately cylindrical in shape, composed of stone or of some similar material. A C. normally consists of

three parts, the capital, the shaft, and the base, and the two former are always found, whereas the early Egyptian and Doric Cs. had no base. In the thirtieth century B.C. Cs. were

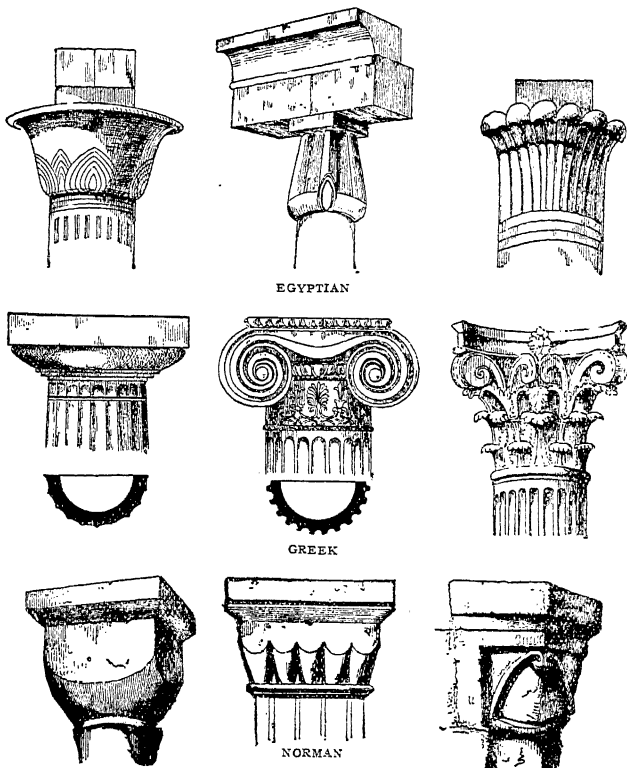


COLUMN

in use among the Egyptians, and were either octagonal or polygonal. In these the idea seems often to have arisen from the imitation of a bundle of reeds tied together. Since, in all Cs., ornament is chiefly reserved for

the capital, and this is the main decorative feature, it may be mentioned that the Egyptian capitals were generally square, lotus, or vase-shaped, though there was great variety of form. In the architecture

the capitals is also important. The Doric has a plain squared capital, while the Ionic is characterised by its volutes, and the Corinthian by its leafage, combined with volutes. These are the three great classical orders,



EXAMPLES OF CAPITALS

of Persia and Assyria, the C. is an unimportant feature, but it is of the highest importance in dealing with Gk. and Rom. work. In the classic orders the construction of each part of the Cs. was strictly according to rule, and the highest excellence of proportion was attained. In the Doric order (Rom.) the height of the shaft is six to eight times the diameter, in the Rom. Ionic eight or nine times, and in the Corinthian about ten times. The distinctions of

and Vitruvius speaks of no others. Two additional ones, the Tuscan and the Composite, are named by post-Renaissance writers. Of these the Tuscan is a particularly plain form of Doric, and the Composite is merely a variation of the Corinthian. All these Cs. taper from the base to the capital, while about one-third of the way up there is a slight swelling (the *entasis*), designed to prevent an optical delusion by which the C. would otherwise appear concave. Cs. are often

carved with channels down the shaft, known as flutings. In Gothic architecture the Cs. generally do not taper, and are of infinite variety in all parts. Single Cs. are often erected to commemorate some great event, *e.g.* Trajan's Column and the Nelson Column.

Column, a military formation in which the units are arranged one behind the other, several ranks in depth. When military science was less developed, the European armies always fought in C., the soldiers of Napoleon invariably using this formation. The one exception was the Eng. army, which always preferred the line. The advent of the breech-loading rifle, making it still more advantageous than formerly to have a long fighting front, led to the giving up of the columnar formation and the general adoption of the line. Reserves, however, still move in C., as this method is easier for movement. A British battalion in C. has its four companies disposed one behind the other in parallel lines, the distance between each pair being equal to the front of one company. (Many infantry battalions, however, now have only three rifle companies, the fourth being a machine-gun company.) In half-C. this distance is halved, and in quarter-C. it is reduced to six paces. When cavalry are moving in squadron C., the four troops which compose a squadron are arranged one behind the other in such a manner that a wheel to either side would bring them into line. There are various other minor distinctions of columnar formation, according to the kind of troops employed, and the term is often used somewhat vaguely to describe any body of troops moving rapidly. Thus we speak of Cs. of artillery, supply Cs., and Cs. under the command of a certain general.

Columna Rostrata: (1) The name given to the triumphal pillar in the forum at Rome commemorating the victory of Duilius over the Cathaginians at Mylæ in 260 B.C. The name originated in the fact that the column was decorated with the beaks (rostra), of the vessels which had been captured. (2) A book of this name, dealing with the British Navy, with special reference to the Dutch wars, was written by Samuel Collier in 1727.

Colunga, a tn. of Villaviciosa dist., Oviedo, Spain, on the N. coast, 20 m. S.E. of Gijón, with fishing and anthracite mining industries. Pop. 7800.

Colutea, a genus of leguminous plants, consists of hardy shrubs, all of which are found in S. Europe, in Palestine, and in the Himalaya Mts. *C. arborescens*, the bladder-senna, is

often cultivated as an ornamental plant. The fruit is an inflated legume, and the leaves are frequently used in the adulteration of senna.

Colville, Sir Charles (1770-1843), an Eng. general who served in the Irish insurrection of 1798, in the Ferrol expedition of 1800, the Egyptian expedition of 1801, and the Peninsular War of 1810-15. In 1819 he became commander-in-chief at Bombay, and in 1828 governor of Mauritius.

Colville, Sir Henry Edward (1852-1907), a British officer. His first experience of active service was in the Sudan campaign of 1884, where he took part in the engagements of El Teb and Tamai. During 1884-85, he served with the Nile expedition, being present at Abu Klea. He was acting-commissioner in Uganda from 1893 to 1895 and commanded the Unyoro expedition. In 1899 he went out to the Cape at the outbreak of the S. African War in command of a brigade of guards. He served under Lord Methuen at the Battles of Belmont, Modder R., and Magersfontein; at the arrival of Lord Roberts on the scene of action he was given command of the ninth division, and assisted in the operations leading up to the Battle of Paardeberg in Feb. 1900. Owing to the unfortunate engagements at Sanna's Post in March and at Lindley in May, C. was superseded and recalled to England in July. Among his published works are *The History of the Sudan Campaign*, 1886, and *The Work of the Ninth Division*, 1901.

Colville, Hon. Sir Stanley Cecil James, British admiral; *b.* 1861; second son of eleventh Baron Colville of Culross. Served: Zulu War, 1879; Egypt, 1882; Nile, 1884-85; Dongola, 1896 (severely wounded). Rear-Adm., 1906; Vice-Adm., 1911; Admiral, 1914. Special service and with the Grand Fleet, 1914-16. Commander-in-Chief, Portsmouth, 1916-19.

Colvin, Sir Sidney (*b.* 1845), an Eng. literary and art critic, *b.* at Norwood. In 1876 he became director of the Fitzwilliam Museum, and in 1884 keeper of the prints and drawings at the British Museum. His works include contributions to many leading periodicals and to the *Dictionary of National Biography*, and *Life of Landor*, 1881; *Life of Keats*, 1887, both in the English Men of Letters series; *A Florentine Picture-Chronicle*, 1898; *Engraving and Engravers in England*, 1906; *Drawings by Old Masters at Oxford*, 1902-8. He has also edited *Selections from Landor*, 1882; *Letters of Keats*, 1887; *Works of R.L. Stevenson* (Edinburgh edition),

1894-97; and *Letters of R. L. Stevenson*, 1899, 1911.

Colwyn Bay, a watering-place in Carnarvonshire and Denbighshire, Wales, $\frac{1}{2}$ m. N.E. of Conway, with a fine sandy beach. Pop. 18,770.

Colza, or Rape Oil, a non-drying oil, used as a lubricant, for burning in lamps, and in the manufacture of soap. It is obtained from the seeds of *Brassica Campestris Coleifera*, by crushing and pressing, or by the use of a solvent. The coke which is left forms a valuable food for cattle. The oil when fresh is yellow and practically tasteless and inodorous, but quickly becomes rancid. Its sp. gr. is about 0.912. The plant is much cultivated, and the oil extracted in France, Belgium, Holland, and Germany.

Coma (Gk. *κόμα*, slumber), a condition of heavy, unconscious sleep, differing from natural sleep in that it is most difficult or impossible to rouse the person in a state of C. The patient is either totally insensible to his surroundings, or has a dull perception of them, with delirium. The former kind of C. is brought about by diseases of the brain and in cases of narcotic poisoning. The second variety is observed in many fevers and frequently is the termination of them, when the patient passes from C. into death.

Coma Berenices (*Berenice's Hair*), in astronomy, a small cluster of stars in the N. hemisphere near the equinoctial colure. It is said to have been so named by Conon to console Berenice, the wife of Ptolemy Euergetes, for the loss of some of her hair which had been stolen from the temple of Venus. It is mentioned in the third century B.C. by Callimachus and Eratosthenes, and its definite location is generally ascribed to Tycho Brahé (1602). The cluster has now been accurately measured by Dr. Chase from Yale Observatory.

Comacchio, a fortified tn. of Ferrara, Italy; in the midst of the lagoons (Valli di C.), 3 m. from the Adriatic, and 28 m. S.E. of Ferrara. A bishop's see. Chief industry, eel-fishing, and the extraction of salt. Pop. 8690.

Comanches, a tribe of N. American Indians belonging to the stock variously known as Shoshonean, Snake, Padoucas, and Nimenim. At different times they have inhabited the Snake R. valley, the Middle Loup River dist., and the Upper Kansas territory (in the eighteenth century), and the region about the headwaters of the Brazos, Colorado, Arkansas, and Missouri rivers. In 1867 they were concentrated in the Kiowa, Comanche, and Wichita Reservation,

Indian Territory, and in 1901 this was thrown open to white settlers as Oklahoma Territory. The C. now number a few hundreds, and are found in the Kiowa agency, W. Oklahoma. They were originally fierce, restless, and courageous prairie Indians, and were for long a constant terror to white settlers on the Mexican and Texan frontiers. In 1783 they were nominally subdued by the Spanish commander Anza, but continued to give trouble till their final surrender in 1875. They speak a pure Shoshone dialect, which was formerly used by a large number of tribes.

Comatula, or Antedon, an important genus of crinoid echinoderms. The living species are dredged from great depths for scientific observation. It has a central mouth and eccentric anus, the stalk is broken off, and the button-like stump is covered with cirri by which it attaches itself to stationary substances. The fossil remains are found from the Lias to the present time.

Comayagua: Dept. of Honduras, Central America. Mountainous, with some fertile plains, and watered by the Sulaco and Humuya rivs. Contains numerous prehistoric remains. There is gold and silver mining and felling of timber trees in the primeval forest. Until 1880 the tn. of G. was the capital of Honduras, but local politics have been its bane. Pop., dept. 26,340, tn. 6000.

Comb, a toothed toilet instrument, used for cleaning and arranging the hair, for keeping it in position when dressed, and as ornaments for the head. The use of the C. is of great antiquity, and specimens have been found in anct. Egyptian, Gk., Rom., and early Christian tombs, and in Swiss lake-dwellings, being variously composed of wood, especially box-wood, bone, horn, and ivory. All these materials are still used in the manufacture of Cs., together with tortoiseshell, metal, india-rubber, xylonite, and celluloid. The one most commonly employed is horn, and there are two main methods of manufacture. For both, the horn is cut into rectangular pieces, damped and heated, and passed out flat. In the first method a series of fine slits, varying with the size of the teeth required, are cut on one side by a small circular saw, which has now superseded the 'stadda' or double handsaw. This involves considerable waste of material, but is the only method possible in dealing with some substances. The second method, known as 'twinning,' or 'parting,' invented by Lyne about 1828, utilises the wedges left between the teeth of one comb to form the teeth of another, so

that all waste is avoided. Cs. of vulcanite, xylonite, celluloid, etc., are made by moulding the soft material and afterwards hardening it.

Combaconum, or Kumbhakunam, a tn. of Madras, British India, in the Cauvery delta, 20 m. N.E. of Tanjore. It was the anct. cap. of the Chola kings, and is regarded as a holy place by the Hindus. There are many temples. One pagoda is 147 ft. high, with eleven storeys. The Ganges is said to flow into a fine tank every twelve years: last on March 6th, 1921. So vast a concourse of devotees enters the water that the surface rises some inches. There are sixteen pagodas on its banks. There is a Gov. College. Pop. 60,700.

Combat, Trial by, the custom in England, according to the old laws, by which the two parties either in criminal or civil cases challenged each other to fight to decide the guilt or innocence of the accused. The idea was, that if the evidence were insufficient the result of the combat would declare the actual truth. If the case were a criminal one, the parties themselves fought, unless one of the two was a woman, or unfit in any way by reason of age or infirmity. In civil cases they were allowed to employ champions. In the beginning of the nineteenth century this custom was abolished, however, owing to the decision in the case of *Ashford v. Thornton*.

Combe, George (1788-1858), a phrenologist and philosopher, b. at Edinburgh. His works include: *Essays on Phrenology*, 1819; *The Phrenological Journal* (founded 1824); *The Constitution of Man*, 1828, his ablest work; *Notes on America*, 1841; *Notes on the Reformation of Germany*, 1846. See *Life*, by Charles Gibbon, 1878.

Combe, William (1741-1823), an Eng. author, b. at Bristol; educated at Eton and Oxford; travelled on the Continent, and then became a lawyer in London. He led a disreputable life, and had a varied and generally unhappy career. His literary activity was enormous, and included attempts at almost every kind of composition. He is best known as the author of *The Tour of Dr. Syntax in Search of the Picturesque*, 1812.

Comber, a tn. of Ireland in co. Down. There are flax mills and distilleries. Pop. 2589.

Combermere - Stapleton, Cotton, sixth Baronet, first Viscount (1773-1865), field-marshal. At twenty-one years of age C. commanded the Gwyn's Hussars. He served through the campaign against Tippoo Sahib

in 1799, including the Battle of Malavelly and the siege of Seringapatam. In 1808 he was dispatched to Lisbon, where he won great distinction in active service. He was second in command under Lord Wellington, and led the famous charge of Je Marchant's and Anson's heavy brigades in 1812.

Combes, Justin Louis Emile (1835-1921), a Fr. statesman of the Democratic party. His earliest intentions were to enter the Church, but he was never ordained; instead, taking a diploma as doctor of letters in 1860, and later a medical degree. In 1885 he was elected to the Senate, where his vigorous attacks upon clericalism brought him into prominence. He was elected Vice-President of the Senate in 1894, and later, when M. Waldeck-Rousseau resigned, he was asked to form a ministry. This period was chiefly remarkable for the attacks on the Church, which C. desired to separate from the State. He was instrumental in closing over a thousand private schools, denouncing them as run by priests. He made public speeches against the Vatican, and lost no opportunity of belittling the power of the Church. What Waldeck-Rousseau had outlined, C. and M. Briand (*q.v.*) carried into effect. He resigned with his colleagues in 1895. His political nickname was 'le Petit Père.' Among his literary productions is *Une Campagne laïque*. He was in the Briand Cabinet of 1915-16.

Combin, Grand, or Graffenire, a mountain peak between Italy and Switzerland. It is one of the Pennine Alps, and lies E. of the Great St. Bernard. Elevation 14,168 ft.; 9 m. S.E. of Martigny.

Combination, Laws of. Till 1824 the laws known by this name forbade as common law misdemeanours any combination of masters or workmen to raise or lower wages, or to increase or diminish the hours or quantum of work. There were, in addition, some thirty-five statutes directed to the prohibition of combinations of workmen against masters. An Act passed in 1824 repealed all these laws, the rationale of which was the removal of all restraints on trade, and forbade all such combinations as were characterised by some element of violent interference. The effect of the Act, whether anticipated by its framers or not, was to legalise the formation of trades unions for the purpose of controlling masters in the mode of conducting their business. Some limitations on this result were enacted by a repealing Act passed the following year, but there are now no laws against combinations other than

the common or statute law against such as amount to criminal conspiracies, as to which see CONSPIRACY.

Combinations and Permutations, see PERMUTATIONS AND COMBINATIONS.

Combinatorial Analysis. A branch of mathematics concerned with a variety of problems in theory of numbers, algebra and geometry, that is of considerable use in the theory of probability. In this article reference can only be made to the simpler results of C. A. that are obtained in algebraical theory dealing with *Permutations* and *Combinations*. For popular problems in the subject the reader is referred to *Mathematical Recreations* (5th ed., 1911) by W. W. R. Ball, and to *Canterbury Puzzles* (2nd ed., 1919) by H. E. Dudeney. Each of the *arrangements* which can be made by taking some or all of a number of things is called a *permutation*, e.g. How many different numbers can be found by using five out of the nine digits 1, 2, 3, . . . 9? The problem is to find the number of permutations of 9 different things taken 50 at a time. One arrangement is 12345; another is 96231.

The first number in any arrangement may be any one of the nine. When it is chosen, the next number may be any of the remaining eight, and so on, so that the total number of arrangements is $9 \times 8 \times 7 \times 6 \times 5 = 15120$. In general the number of arrangements of n dissimilar things taken r at a time is written nP_r , the symbol for $n(n-1)(n-2) \dots (n-r+1)$.

Each of the *groups* or *selections* which can be made by taking some or all of a number of things is called a *combination*. Referring to the previous example, while 12345 and 54321 are both different arrangements, they are counted as the same combination. The number of combinations of n dissimilar things taken r at a time is written nC_r , which is the symbol for

$$\frac{n(n-1)(n-2) \dots (n-r+1)}{1, 2, 3, \dots r.}$$

e.g. From a total of 15 cricketers how many ways can an eleven be chosen? The required number is ${}^{15}C_{11}$

$$= \frac{15 \times 14 \times 13 \times \dots \times 5}{1 \times 2 \times 3 \times \dots \times 11} = 1365 \text{ ways.}$$

Combine, a term used in industrial warfare to denote temporary federation of employers, usually in any particular industry or related industries, for the purpose of protecting their common interests, whether by keeping up the price of commodities produced by them, or by reducing wages

or the hours of labour, or by any other way. Such a federation was formed in London in 1911 of a great number of employers in entirely different industries by way of mutual protection against the effects of the very prevalent strikes of that year. The basic principle of a C. is that of defence, and therefore it is to be distinguished from a trust, which is an amalgamation for all or most purposes, usually with the ultimate object of forcing up the price of certain articles. A C., however, is not always of a temporary nature, but sometimes denotes a consolidation of business interests, practically analogous to a cartel (q.v.) or a trust (q.v.). The permanent C. is either 'horizontal' or 'vertical.' The horizontal C. is the result of the union of a number of firms doing similar business who wish to organise their production on the same basis and to profit from the technical improvement which a united effort makes possible. The vertical C. is that which exists between firms dealing with the same material but at different stages in its manufacture. This combination between the interests of producer and manufacturer tends to suppress the middlemen's profits. Vertical Cs. are common in Germany and the U.S.A., and they have increased in England since the Great War, notably among the industries connected with iron, steel, shipbuilding, paper, and soap. If the C. is not the result of absorption of the smaller industries by the larger, one company, known as the holding company, may sometimes hold controlling shares in each of the other constituent companies in the C. A C. may exist between a number of unrelated businesses such as occurred with the famous Stinnes group in post-war Germany.

Combining Weight or Equivalent of any element is the number of units of weight of that element which will react either directly or indirectly with one of the same units of weight of hydrogen. It is not possible always to make hydrogen compounds of all the metals, so sometimes the standard of comparison is taken as oxygen or even chlorine. But by the law of reciprocal proportions (see CHEMISTRY) it is easy then to determine the equivalent of the element; for the combining proportions oxygen and chlorine with hydrogen are respectively 8 and 35.5 (approximately). Occasionally C. Ws. of elements are the same as their atomic weights, although this is by no means universally true, e.g. the equivalents of carbon, oxygen, and sulphur are 6, 8, and 16 respectively, while their atomic weights are 12, 16, and 32. But from this it may

be seen that the atomic weight is either the same as the equivalent weight, or is a multiple of it, the multiple depending on the valency of the element. See CHEMISTRY, and ATOM AND ATOMIC THEORY.

Combles, a tn. of France, in the dept. of Somme. During the Great War severe fighting took place about C. during the 1916 Battle of the Somme. The Fr. and British actually met in C. on Sept. 26, driving the Gers. before them. The Gers. swept over C. in their final advance of March, 1918, and in the Allies' counter-offensive held it with great determination during Aug., its military importance being entirely due to its being the only town in that area. Owing to pressure on both flanks, however, they were eventually forced to abandon it.

Combourg, a tn. in the N.W. of France, situated in the dept. of Ille-et-Vilaine, 24 m. S.S.E. of St. Malo. Pop. 4620.

Combrailles, the name of two dists. in France, one a plateau called La Combrailles du Limousin between Creuse and Cher, the other a dist. called La Combrailles de Bourgogne, consisting of wooded hills.

Combustion may be said to be chemical action accompanied by the production of heat and light. If heat and light are produced without an accompanying chemical action, C. is not taking place. For example, the carbon thread in an electric glow lamp is never in a state of C. or burning although it glows, because it is *in vacuo*, and therefore undergoing no chemical change. If the amounts of heat and light developed in a chemical action are small, then the C. is said to be slow or incipient. On the other hand, should the amount be great, then it is said to be rapid or active. The phlogistic theory was generally held until 1775 to explain the theory of C. According to this theory, all bodies which were combustible contained a principle called 'phlogiston.' According as the amount of phlogiston contained was large or small, so it was thought would the C. be rapid or slow. As a metal, for example, burned it was regarded as giving off this phlogiston into the air. The material left, which we know to be the oxide of the metal, was in those days called the 'calx.' So calx together with phlogiston was considered to form a metal. Boyle showed that the calx was heavier than the metal, so that phlogiston, if it existed, must have negative weight, but when it was proved that water was formed by the C. of hydrogen in oxygen, the phlogiston theory was finally abandoned towards the end of

the eighteenth century. In processes of C. it is usual to regard one body as being combustible and the other as the supporter of C. In this connection the surrounding substance is regarded as the supporter. Now the atmosphere is the most familiar supporter of C., and it is usual therefore to term bodies as being combustible or incombustible according as they will or will not burn in air. Similarly it is usual to talk of other gases as being combustible if they will burn in air, and as being supporters of C. if bodies that burn in air will burn in them. But scientifically this is incorrect. For example, hydrogen will burn in air or oxygen, but oxygen will also burn in hydrogen: coal gas burns in air, but air can be made to burn in coal gas. Similarly it must be remembered that air or oxygen is not necessary for C., e.g. hydrogen will burn in chlorine.

During any process of C. heat is evolved and a certain temperature reached. These are two separate features which are important. The temperature is, of course, measured with the aid of a thermometer, the amount of heat in calories. Now the temperature may vary according as the C. is slow or rapid, but the heat of C. is always the same for the same two substances. Thus iron rusting in air is a process of slow C., and because of this the heat is radiated away without any appreciable rise in temperature. If, however, iron is heated and placed in oxygen, the C. is rapid, the temperature consequently rises greatly, because the heat is evolved quickly, and light is developed and C. manifested. But in both cases the total amount of heat evolved is the same. Therefore the difference between slow and active C. is not in the amount of heat developed, but in the temperature which is attained. It is necessary to raise every substance to a definite temperature before it will take part in C., and that temperature is called the ignition point. Some substances are spontaneously inflammable, because this point is in their case below the normal temperature of the atmosphere. If the temperature produced by the C. of two substances be higher than their ignition point, then those substances, having started to burn, will continue without further application of heat. This is the usual process of C., and the chemical reactions in these cases are exothermic, i.e. are accompanied by the evolution of heat. If the ignition point be higher than the temperature produced, then heat must be continuously supplied in order that the process may be continued. This is because heat is absorbed in these chemical reactions

which fall under the heading endothermic. An interesting illustration of this, taken from Newth, is the case of nitrogen and oxygen. They can be ignited by the electric spark, but the ignition point of nitrogen in oxygen is higher than the temperature produced; therefore the inflammation does not spread to surrounding particles. If the ignition point were lower than the temperature produced, then the first flash of lightning in the atmosphere would have started a conflagration which would have removed all the oxygen from the air, replacing it by oxides of nitrogen, so rendering life impossible. When a fuel is burnt in a furnace or in an internal-combustion engine, the carbon burns and passes off as carbon dioxide (CO_2), the hydrogen burns and forms water (H_2O), which passes off as steam, and the sulphur (if it is present) forms into sulphur dioxide (SO_2). If air is not present in large enough quantities, the carbon is not completely burned and passes off as carbon monoxide (CO); this is the case in internal-combustion engines, and is the reason why the exhaust gases of the automobile are so deadly, since carbon monoxide is a very poisonous gas. In order to ascertain the state of combustion of a furnace of large boilers, the amount of CO_2 in the flue gases is automatically recorded, the aim being to make the percentage of this gas as high as possible, under which condition the fuel is burnt most economically or, in other words, the most air and the least fuel are being burnt. This point is important in large electricity-generating stations in securing the greatest efficiency in the plant. In the flue gases the percentage of CO_2 sought by boiler engineers is from 10 to 14 per cent. The percentage of fuel wasted between these two points is from 10 to 20 per cent. more fuel being wasted at the lower percentage of CO_2 . In the case of the internal-combustion engine the percentage of CO_2 in the exhaust gases cannot be regulated definitely, since this would cause a loss of power due to the difference of pressure between the inlet and exhaust valves. For further information see FLAME.

Combustion, Spontaneous Human, see SPONTANEOUS COMBUSTION.

Comedia (dell' arte), a term used in old Spanish drama, meaning a tragedy or comedy in three acts. It can be divided into two sections: (1) *Comedia de capa y espada*, represented actors of middle class life in every-day incidents. The characters were clothed in ordinary dress—the cloak and sword of the civilian. (2) *Comedia de teatro, or de ruido*, played

by kings and princes. The actors were very richly dressed, and dramatic scenes were chosen.

Comédie Française, the official name of the Théâtre Français, the national theatre of France, which dates its establishment from the year 1680, though we may carry it a little farther back. In 1658 Molière's company, playing under the name of 'L'Illustre Théâtre,' quitted the provinces and settled in Paris. At that time a rival company at the Hôtel de Bourgogne already held the field, but Louis XIV., who early took the new company under his protection, ordered the two to amalgamate in 1680 under the name of La C. F. This theatre, then the only one left in Paris, received an annual subsidy of 12,000 livres from the king. The most brilliant of its actors and actresses at this period were Champmeslé, Baron, Hauteroche, and Poisson. In 1687 the C. F. moved from the Rue Guénégaud to more commodious quarters in what is now known as the Rue de l'Ancienne-Comédie, where a large house had been built for it. Here it remained for nearly ninety years, producing the plays of Molière and of contemporary dramatists. Its intimate connection with the master of Fr. comedy, both in its origin and its later history, is shown by the fact that Fr. writers still commonly refer to it as 'La Maison de Molière.' In 1771, the C. F. was removed to the Tuileries, where the company played in a hall built on the site of the Hôtel de Condé, afterwards to be rebuilt as the Odéon. It remained here during the early part of the Revolution, but political events led to such dissensions that a split occurred about 1790, which led to the break-up of the old 'Française' and the establishment of two rival companies, the Théâtre de la Nation and the Théâtre de la République. These came to an end in a few years, and a gap occurs in the history of the company until 1802, when it was re-established by an edict of Napoleon. When at Moscow in 1812, Napoleon published a further decree, giving full regulations for the conduct of the theatre, and these regulations, with slight modifications, still govern the theatre. In March 1900 the C. F. was set on fire, and a considerable portion was destroyed, though the papers and works of art were saved. A grant of 220,000 francs was promptly made by the Gov., and the work of rebuilding was immediately carried out. A very notable feature of the C. F. was its extraordinarily large repertory, and at times the company could produce, after a hasty rehearsal, any

one of about 100 plays. The old system of collecting all the takings and the paying out in allotted shares according to the part played by each performer was another feature of long standing. Many of the most eminent Fr. actors and actresses of recent years, whether of comedy or tragedy, have made their début at the C. F. or have been connected with it during part of their careers, e.g. Sarah Bernhardt, who made her first appearance there in 1862 and for nearly twenty years belonged to the company; Coquelin Aîné, whose association with this theatre lasted for over thirty years; Réjane, Jane Hading, Mounet-Sully, and the Guitrys. On the evening of Oct. 20, 1930, the C. F. celebrated the two hundred and fiftieth anniversary of its official creation. Its leading artistes are content, mainly because their position enables them to earn extra money elsewhere and on the films, to receive from the C. F. no more than an average of £800 a year. Its traditions and fame ensure steady receipts, and it has the privilege of engaging at a very modest salary the prize-winners at the Conservatoire, who are given a free dramatic training by the State and are bound to accept engagements offered at the C. F. In addition to these advantages, it has an annual subsidy of some £8000. But its latest report (1930) shows that the theatre does not really pay its way, and that to earn the equivalent amounts of 1914 the artistes would have to be paid such additional sum as would necessitate a subsidy of at least £30,000 more. The Sociétaires of the theatre are now petitioning for this increase. Up to 1930, artistes had been strictly bound by the Constitution of the national theatre, laid down by Napoleon in a decree issued from Moscow, which forbade any member appearing on another stage. The sound films have, however, slightly modified this veto; an actor of the C. F. may now act in a 'talkie' provided that the film does not represent a play included in the repertory of the theatre, and that only one member of the National Theatre's Company appears in it. See Fournier's *Le Théâtre Français*; De Julleville's *History of French Literature*, 1900, which not only deals fully with the literature of the period, but also supplies an excellent bibliography; J. Bonnasie's *La Comédie Française*; Lucas's *Histoire Philosophique et Littéraire du Théâtre Française*, 1863; J. Claretie's *La Comédie Française de 1680 à 1900*, 1901; F. Sarey, *A Company of Actors*, 1926; L. Dubech, *La C. F. d'aujourd'hui*, 1926.

Comedy, *see* DRAMA.

Comedy Theatre, a London theatre, situated in Panton Street, Haymarket. It is a small building, holding no more than 1200 of an audience, and was opened in 1881 with a comic opera, *La Mascotte*. For several years this was followed by other operas. Hawtrey, Beerbohm Tree, Marion Terry, Penley, Winifred Emery, Violet Cameron, Cyril Maude, and Maxine Elliott are a few well-known actors and actresses who have appeared on the boards of this theatre, and Jerome, Barrie, Pinero, Grundy, Fitch, and Sutro are some of the playwrights whose works have been produced in it.

Comenius (properly **Komenski**), **Johann Amos** (1592-1671), a distinguished scholar and educational reformer, was b. at Comna, in Moravia, or, according to another account, at Nionitz in the same district.



COMENIUS

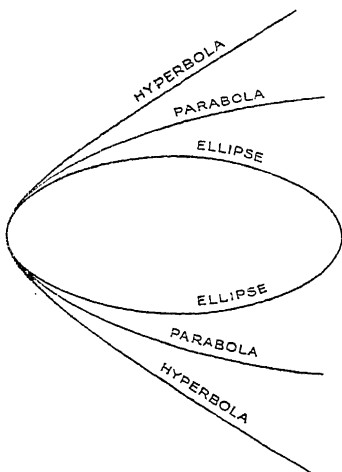
His parents were poor adherents of the Moravian Brethren. Having studied at Herborn (1612) and at Heidelberg, and having made a tour through England and Holland, C. became rector of the Moravian school at Prerau in 1614. After that he was made pastor at Fulneck, where he remained until 1621, when the town was taken and sacked by the imperialists, his house and library being destroyed. He wandered into Poland, and finally settled at Lissa, where he supported himself by teaching Latin. It was here that he

worked out the educational system which was to make him famous, and produced his *Didactica Magna* in 1632, the year in which he was chosen 'elder' of the Moravian Brethren. The year before this he had published the *Janua Linguarum Reserata*, written in Latin and Moravian, which had securely established his reputation. This work was translated into twelve European languages and several Oriental ones. It was followed in 1633 by the *Janua Linguarum Vestibulum*, which formed an introduction to it. In 1641 he was invited to England by the Parliament, on the suggestion of Hartlib, to assist in the reformation of public educational methods. The outbreak of the civil war put a stop to this design, and C. went on to Sweden, from which country he had received an invitation to aid in the same work. Oxenstjerna, the great Swedish minister, commissioned him to prepare a plan for the regulation of Swedish schools, and settled him at Elbing with a pension. Here he remained until 1648, when he returned once more to Lissa, and was made Moravian bishop of that town. In 1650 he went as educational reformer to Saros-Patak in Hungary. He did not remain here long, but found time to put together his *Orbis Sensualium Pictus*, the first book which tried to instruct children by pictures. In 1656 Lissa was attacked and sacked by the Poles, and C. again lost his house and books. This time, it is said, some of his MSS. were also destroyed. He found a refuge at Amsterdam, where he remained till his death. He was buried at Naarden. As an educationist, C. was far in advance of his time. He grasped the fact that children cannot be instructed from dry and learned tomes, and insisted on the use of pictures and the book of nature. Languages, he said, should be taught by natural conversation on ordinary topics, and science should not be neglected, as it then was. In his *Pausophica Prodomus* he attempted to give an encyclopædic digest of the humanistic learning of his time. In theology he was a fervent evangelical, and published several works on his own sect. Towards the end of his life he inclined greatly towards mysticism under the influence of Boehme. See Monroe's *Comenius and the Beginnings of Educational Reform*, 1900; Keatinge's translation of *The Great Didactic*, 1896; Laurie's *Comenius, His Life and Work*, 1881.

Comenius Library and Society were both founded towards the end of the nineteenth century, during the celebration of the great educator's tercentenary. The former was founded

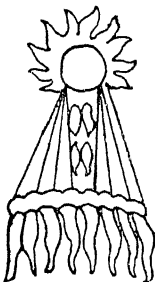
at Kassel in 1871, and now contains over 100,000 volumes and pamphlets, dealing chiefly with educational systems and that of Comenius in particular. The society was founded in 1892 at Berlin for the study and propagation of the ideas of Comenius.

Comet, a heavenly body of a luminous and nebulous appearance which approaches to and recedes from the sun. The name is derived from the Gk. *κομήτης*, hairy, a name bestowed on these bodies because they generally possess a 'tail' or 'tails'; this tail in anct. times also being called a 'beard' when the train preceded the nucleus, as is the case when the C. is receding from the sun. Most Cs. are divided into three parts, the *nucleus* and the *coma*, which together form the head of the C., and the *tail*. It is impossible to



exactly define the limits of each of these parts, as they shade gradually into the other; quite often, too, a C. is without a tail, others again (as e.g. that of Cheseaux, 1744) may have half a dozen. The nucleus is the brightest portion, the coma which surrounds it is a hazy area of light, while the tail becomes more and more faint and attenuated until it fades out. How attenuated is the matter that composes a C. may be judged by the fact that stars have repeatedly been seen through the thickest parts, and that the earth has passed through the tail of a C. without any observable effect. Thus Sir J. Herschel records that in 1832 he

saw a group of stars of the sixteenth magnitude through almost the centre of Biela's C. The composition of a C. as revealed by the spectroscope (which was first successfully applied to determine the constitution of Cs. by Sir Wm. Huggins in 1868) is of gaseous hydrocarbons of extreme tenuity, while metallic lines, such as those of sodium and iron, have been observed in the spectrum of the nucleus. The spectrum of a C. also shows that the light is partly reflected sunlight and partly original. About 800 Cs. have been recorded, the larger portion of them being telescopic only. More than half this number have had their orbits calculated, and are found to move in one or other of three out of the four conic sections, *i.e.* an ellipse, a parabola, or a hyperbola (*see* illustration). The number of Cs. moving on elliptical orbits is comparatively few, being about eighty. These 'short-period' Cs. may be expected to return to the sun and therefore necessarily belong to the solar system (*q.v.*). Chief among these are Biela's, Encke's, and Halley's Cs. The rest of the Cs. move in parabolic paths, except about half a dozen, which, as the result of perturbations, have a hyperbolic movement. Cs. break up by the expulsion of matter from the head of the C. Large Cs. such as Halley's C. emit fresh matter forming new tails at each approach to the sun. The present view is that the cause of the expulsion is electrical in origin. The head of the C. contains reservoirs of the gases identified by spectroscopic analysis, and as meteoric masses are found to contain hydrogen and other gases, it is considered that the head of the C. is composed of meteors. Ultimately the C. will cease to exist when all the gases in its reservoir have been lost. One of the most recently discovered Cs. appeared on June 23, 1927, known as Pons-Winnecke, after its discoverer. A member of the Jupiter family, its nearest distance from the earth on that occasion was about 3½ million miles, the closest approach of a C. in the past few centuries. Its period is six years. Regarded merely spectacularly and historically, Cs. have ever been the object of man's curiosity



BAYEUX TAPES-
TRY COMET

and sometimes his fear. Thus the dream of Julius Caesar and the Battle of Hastings were believed to have been heralded by Cs., a representation of the latter C. appearing in the Bayeux tapestry. The Bayeux C. has been shown by calculation to have indubitably been Halley's C., and it is conjectured that Halley's C., was the one recorded by the Chinese annals as having appeared in 240 and 87 B.C. The periodic return of certain Cs. has been useful in fixing or confirming historical dates, that of Halley being the first to return as predicted, *viz.* in 1759 (*see* HALLEY'S COMET). The most spectacular of the Cs. of the nineteenth century was that found by Donati on June 2, 1858. It stretched over a space of 10°, or nearly a quarter of the sky, and its maximum width was about 10°. *See* METEORS and SOLAR SYSTEM.

Comillah, a tn. in Bengal, in the Chittangong div. It is situated on the R. Gunti. C. has many large banks, and an Eng. church. Pop. 25,914.

Comines, a tn. on the R. Lys, between France and Belgium, near Lille, with 6400 inhabs. and textile industry. There was fighting here in the Great War on Oct. 15-18, 1914.

Comines, Philippe de la Clyte, Sire de (1445-1509), Fr. statesman and



PHILIPPE DE COMINES

chronicler, b. at the Château de Comines, near Lille. In 1464 he entered the service of Charles the Bold, but soon showed a desire to enter the service of Louis XI. of France, his master's adversary. He

did this in 1472, and, the tempers of the two agreeing admirably, he soon rose in favour. On the death of Louis in 1483, C. was made one of the counsel in regency, but he incurred the displeasure of Anne de Beaujeu, and was condemned to lose all his estates. However, C. was far too brave and experienced a man to be kept long in disgrace, and Charles VIII. soon recalled him. In 1493, we find him taking part in the Treaty of Vercelli and engaged on other diplomatic business. After holding several offices under Louis XII., he d. at his castle of Argenton. His *Mémoires* form a complete critical survey of the politics of the time. They are characterised by vigour and most acute observation and insight. Their psychological perception and vivid style unite to give them a rare value.

Comiso, a tn. in the prov. of Syracuse in Sicily. It is 13 m. W. of Ragusa, has paper manufacture and a pop. of 32,325.

Comitan, a tn. in the State of Chiapas, Mexico, close to the Guatemalan border, the centre of a large trade in sugar and cattle, and making a strong brandy from a maguey plant. Pop. 14,000.

Comitia, the constitutional meetings of the Rom. people, summoned and presided over by a magistrate. These meetings are to be distinguished from the *contiones*, where the people gathered informally to receive some announcement from the magistrate. In the C. the people assembled in regular order and the object was the decision by vote of some question of legislation. The C. soon lost their representative character, and their importance declined. There were three kinds of C., named according to the way in which the people were arranged. These were: (1) The *Comitia Curiata*, the original form of assembly, which first consisted in the meeting of the patricians in their thirty *curiae*, or wards. On the breaking down of the distinction between patricians and plebeians, this assembly lost its distinctive character. Though it still retained one or two unimportant privileges, most of its duties were transferred to (2) the *Comitia Centuriata*, an assembly of the whole people in their centuries as arranged by Servius Tullius. To this king is ascribed the division of the people into five classes, according to the amount of property they possessed, and the division of each class into hundreds. To this body, the chief power belonged during the republic. It elected the higher magistrates, e.g. the consuls and censors; gave judgment in special cases of appeal, decided on wars of aggression,

and passed laws. In 287 B.C., however, it lost much of its power through the rise of the *Comitia Tributa*. The *Comitia Centuriata* was originally a military assembly, and its meetings could not take place in the city of Rome itself. They were held in the Campus Martius. Each century voted as a unit, according to the majority in itself, and so the decision was by centuries. (3) The *Comitia Tributa* was the assembly of the people according to tribes, and the power of summoning it rested with the tribunes. Originally the city of Rome was divided into four tribes, but as its dominions increased the franchise was extended to comprise thirty-five tribes in all. Gradually, power passed to the *Comitia Tributa*, until it became the chief legislative assembly, and continued in a more or less shadowy form down to the third century A.D.

Comity of Nations. In the language of jurisprudence there can be no sanction other than that of arms for the due observance of engagements entered into between nations. There is no legal obligation either to respect the terms of a treaty or to apply foreign law in deciding cases in the courts of a state which is asked to recognise such law. Hence the *de facto* respect for such reciprocal undertakings depending on a kind of morality, has been very generally ascribed to the comity or courtesy of independent states towards each other. In the light of modern civilisation, with its complicated blending of international interests and ever wider ramifications of reciprocal commercial enterprises, the phrase C. of N., though strictly logical from the standpoint of independent sovereignty, lost a great deal of its force, even before the Great War; and, since the War, the creation of the League of Nations has further tended to relegate the phrase to the archaic. Some writers distinguish between C. of N and private international law and holding that C. of N. comprises purely voluntary acts not due by treaty, which may advance the international policy of the nations so observing them; and including in private international law the application by law courts, in certain circumstances of the principles of a legal system other than their own.

Comma, in music, is the smallest enharmonic interval, the ninth part of a tone. See MUSIC.

Commagene (Gk. Κομμαγενή), anct. prov. to the N.W. of Syria, bounded on the W. by Cilicia, E. by the Euphrates, N. by the Amanus Mts. Its limits have often varied, and its history has been full of changes. Dur-

ing the period of the Seleucidæ it formed part of the Syrian kingdom, and was celebrated as a rich and fertile country. Long before this it had attempted to gain its independence, and in the civil wars which arose between Grypus and his brothers this object was attained and C. became a separatestate under a dynasty related to the Seleucidæ. It remained thus from 162 B.C. to 72 A.D., when it finally became a Rom. province, under Vespasian. From this period, the years 17-38 A.D. must be taken out, for during this time it was also a Rom. province. Its capital was Samosata.

Commandant, the title usually given to the officer in command of a besieged fortress or military station, without regard to his rank otherwise. The name is also applied to the heads of most military schools. In conjunction with the rank of the officer the title is also given to an officer in charge of a greater number of men than his rank warrants, as for example, captain-commandant.

Commander, the title given to the captain of the second rank in the British navy. A C. is generally given the command of a small vessel, but in a number of cases is the second in command of a large one. The responsibility of the navigation of a large vessel usually falls on a C. The title is also used in the U.S.A. to signify a naval officer ranking next to a captain.

Commander-in-Chief, formerly the highest staff appointment in the British army. Previous to 1855 the office was to a very large extent independent of the Secretary of State for War, but since that date and up to its abolition in 1904 was subordinate to that minister. The title was held by the Duke of Cambridge up to his death and afterwards by the Earl Roberts. It was resigned by the latter in 1904, and was discontinued. The duties of the office devolved upon the Inspector-in-Chief of the Forces, a title first borne by the Duke of Connaught.

Commander-in-Chief. This title is now, in the British service, borne in peace time by General Officers Commanding first-class Commands, e.g. Aldershot, Eastern, Southern, etc., and India. In war-time it is usually applied to the Commander of any force of a considerable size, or to the holder of an independent Command, and is comparable to Generalissimo in continental armies.

Commander of the Faithful (*Emir al Mumenin*), title of the califs, first assumed by Omar I., 634-644, and retained by his successors in the califate.

Commandery, the district under a commander, in connection with the Templars, Hospitallers, and other religious orders. The Templars possessed twelve such Cs., which embrace whole kingdoms and provs. in Europe and Asia Minor, viz. Jerusalem (city and kingdom), Acre, Tripoli, Antioch, France, England, Poitou, Aragon, Portugal, Apulia, Hungary. The commanders, or preceptors were controlled by the Grand Master of the order, but were alone responsible for the treasure of their district, to which the Grand Master was allowed no access.

Commandite, Société en, a kind of limited partnership of a fiduciary character in which the managing partner or partners are responsible with their whole fortunes for the engagements of the concern, but have others associated with them who contribute only definite sums, and are not liable for anything beyond those sums, though they participate in the profits according to any rule which may be agreed on. It is a form of partnership prevalent in France, Belgium, Germany, Italy, Russia, and other continental states, and adopted in parts of the U.S.A. The names of the active partners (in Fr. law called *commandites* or *complementaires*) alone appear before the public, and they alone manage the partnership business, the dormant partners (in Fr. law *commanditaires*) being usually interdicted from all interference. Such partnerships are not allowed by Eng. law, all the members of an Eng. firm being equally liable for the firm's debts, with no limitation of liability. In England, however, practically identical results can be secured by the formation of a small limited company, and, especially since 1901, by what is known as a 'private company' (see under COMPANY); the legalisation of the latter indeed depriving of a large measure of their weight the arguments of J. S. Mill on the indefensibility of the Eng. prohibition.

Command Papers, documents like blue-books, comprising reports of royal commissions, census returns, and other information collected or issued at the instance of the Gov. are said to be 'presented to parliament by command of His Majesty,' in contradistinction to papers issued by the order of either House of Parliament, such as drafts of Bills with their amendments. C. P. are usually pub. in alternate series of nearly 10,000, and numbered C1, C2, and so on up to the number issued, and Cd 1, 2, etc.

Commandrio, Federico (1509-75), an Italian mathematician, b. at

which the hermit can remain. Sometimes, again, as when a hermit has become associated with sponges, the commensal grows so large that the hermit can abandon its shell and depend entirely for protection on its associate. Further, when the commensal of the crab is a polype, which buds into a colony, dissolving the shell as it grows, the hermit finally is surrounded by the polype which yields as the hermit itself grows. But apart from these fixed commensals, a large number of organisms are in constant association without being connected. This may be because the same environment suits each, or it may be that one alone is, or perhaps both are, gaining benefit. Thus little crabs (*Pinnotheres*) can be found inside bivalves, and the same thing is common with crustaceans. The little crab benefits by obtaining food and oxygen from the currents inhaled by the bivalve. It has been suggested that these crabs with their developed sense organs can, by some means or other, warn their hosts of impending danger, thus causing them to close their shells. It is probable, however, that the advantage is in this case on the side of the intruder, and that the host is unable to eject it, even should it wish to. While no damage is being done, it is easy to see how it is possible for C. to pass by slow degrees into parasitism. In a similar manner, not all insects visiting plants are parasites; very often they serve a good purpose by feeding on other visitors, and may therefore act as a defence for the plant.

Commensurable (Lat. *commensurabilis*). Two magnitudes are called 'commensurable' when they are of the same kind and each contains a third magnitude exactly, examples being a foot and a yard, or the numbers 14 and 21. If no unit or common measure can be found, the magnitudes are 'incommensurable,' examples being the diameter and circumference of a circle, and in arithmetic numbers which are prime to one another, as 17 and 23.

Commentry, a tn. of France in the dept. of Allier, 210 m. S. of Paris. It has coal and iron works. Pop. 10,090.

Commerce, Chambers of, see **CHAMBERS OF COMMERCE**.

Commerce Court (U.S.A.). The C. C. of the U.S.A., which was created for the purpose of passing on appeals from the decision of the inter-State Commerce Commission, has jurisdiction in shipping and railroad cases, and in most cases involving questions of mercantile law. The legislative, executive, and judicial appropriation Bill before the 62nd Congress contained a provision repealing the Act

which created the C. C. From the decisions of the Supreme Court of the U.S.A. it appears that the C. C. amplified its jurisdiction beyond its legal limits, and that in a number of cases it gave judgments against shippers and for the railroads when the Supreme Court held the view that the judgments ought to have gone the other way. The president, however, took the view that there was a series of decisions of the Supreme Court that satisfactorily assigned the limits of the jurisdiction of the C. C. and that there was no reason to suppose the Court would exceed that jurisdiction in future. The result was that the C. C. was saved. The personnel of the C. C. changes annually by the assignment of one of the C. C. judges to a circuit court of appeal and the designation of another circuit judge to fill the vacancy so created.

Commerce, Department of (American) is one of the chief departments of the organisation for federal administration. The duties of its several heads are to promote commerce, mining, manufacturing, shipping, fisheries, patents, and transportation. In 1931 the Secretary of Commerce was Robert Paterson Lamont. The department includes branches of aeronautics, radio, navigation, light-houses, standards, steamboat inspection, census, coast and geodetic survey, fisheries and mines.

Commercial Court is not *de jure* a separate court established by law; the term C. C. applies to any court on the King's Bench side to which may be assigned the disposal of cases included in the commercial list. Such as it is, the C. C. originated in the special arrangements made by the King's Bench judges in 1895 for the dispatch of commercial business 'in accordance with the existing rules and orders.' There are no pleadings in the ordinary sense, but the plaintiff may submit 'points of claim,' to which the defendant may reply with 'points of defence'; nor is there a jury, the whole practice of the court being designed to ensure expedition in trial.

Commercial Education, an offshoot of technical education, is in England mostly under the jurisdiction of the Board of Education. The greater part is conducted in Evening Schools where Junior, Senior and Advanced Classes are held. The subjects taught in Junior Classes are English, arithmetic, shorthand, geography, and sometimes elements of commerce. In Senior Classes the principal subjects are shorthand, typewriting, book-keeping, accountancy, and modern languages, while in Advanced Classes general economics, business

management and methods of business, trade organisation, etc., are among the subjects studied. Important schools and colleges which supply a C. E. in England are the London School of Economics and Political Science (q.v.), now part of the London University; the City of London College; Higher School of Commerce at the Regent Street Polytechnic; and the Manchester Municipal High School of Commerce. There are also faculties of commerce at the Universities of Manchester and Birmingham, while the University of Durham at Armstrong College, Newcastle, offers a commercial degree and Liverpool University a B.A. degree for proficiency in commercial subjects. Other examinations in commercial subjects are held by the Royal Society of Arts, the London Chamber of Commerce, and the Union of Lancashire and Cheshire Institutes.

In the U.S.A. more attention is given to C. E. than in any other country. The High Schools include commercial subjects in their curriculum, and nearly a hundred American Universities and Colleges have schools or departments of business administration and commerce. At Harvard where the School of Business Administration is for graduate students only, the case method of study is employed. Well-known cases which have occurred in commerce have been collected by Harvard professors, and they are studied in detail by the students. Both in England and the U.S.A. there are a number of private commercial schools, some with tuition by correspondence.

Commercial Intelligence Department was inaugurated in 1899 as a branch of the Board of Trade under a Controller-General. The headquarters of the C. I. D. in London included an inquiry room, a sample room, and a reading room, and the purpose of the department was to collect all available information on all subjects of commercial interest and, for the benefit of British trade, to reply authoritatively to all trade inquiries. Commercial statistics were also drawn up and published in the *Board of Trade Journal*. The department also supplies free of charge to firms and companies whose names are on a register, kept by the department for that purpose, any necessary confidential information such firms and companies may require concerning their particular trades and industries. It also publishes the fullest statistics and information relative to strikes and lock-outs, the condition of the working classes, the prevalent hours of labour and price of commodities.

During the Great War increased Gov. supervision of industry became necessary, and in 1917 a joint department was formed under the Board of Trade and the Foreign Office, called the Department of Overseas Trade. Into this department the C. I. D. was merged, and after the war the arrangement became permanent. The former functions of the C. I. D. in the collecting and distributing of commercial information remained intact, and as a branch of the D. O. T. its activities were extended in the direction of a commercial consular service for the benefit of traders abroad. The headquarters of the former C. I. D. at 73 Basinghall Street, London, E.C.2, are now the City Branch of the D. O. T. under the management of the Senior Intelligence Officer.

Commercial Traveller. The modern C. T. may be defined as the direct representative of a wholesale house employed to travel round specified areas to solicit orders from retail tradesmen. He usually carries samples or some other indication of the nature and quality of the goods he 'travels in,' takes orders not in his own but in his firm's name, and is paid either by salary or commission, or by both. The C. T. of the coaching days was generally known as a travelling chapman (*cf.* Ger. *Kaufmann*, merchant), and as the ponderous public vehicles traversed only the main roads, many of the travellers who desired to penetrate into remote parts of the country had their horses and saddle-bags. Since the era of railways their number has increased enormously, and where formerly London, Manchester, and Glasgow trading houses sent one traveller to each town they now send many, each of whom deals with but one special department instead of soliciting orders for all the classes of goods dealt in by his principals. Among the C. T. organisations are the Commercial Travellers' Benevolent Institution, the Commercial Travellers' Christian Association, and the Commercial Travellers' Schools Institution.

Commercial Treaties. A commercial treaty is a bilateral agreement between two nations under which each contracting party binds itself to observe a number of definite stipulations regulating their mutual trading relations. Such treaties have existed in one form or another from the earliest times. The text is extant of C. T. between Rome and Carthage as early as 500 B.C. C. T. during the period of Charlemagne, and in the tenth and eleventh centuries, existed in W. Europe in the shape of royal charters or other documents from sovereigns, expressly permitting for-

eign merchants to carry on commercial intercourse within their territories. The purpose of these C. T. made in more turbulent times was rather, through the medium of promises for the protection of the person, effects, and privileges of the foreign merchant, to make commercial intercourse reasonably possible than to adjust mutual relations for the economic advantage of either party; and further, they were of certainty of duration. The modern C. T., in the sense of a bilateral arrangement for a fixed period regulating tariffs and differential duties, has its origin in the political and commercial rivalry of the mediæval Italian republics. The advantages derived from the greater certainty of a treaty over usage or the personal guarantees of a foreign monarch soon ensured the universal prevalence of C. T., providing for the greater security of navigation and commerce. At first C. T. were restricted to exclusive undertakings between the contracting states, the ultimate object being to destroy the competition of other nations in foreign markets, while at the same time excluding as far as possible all imports other than raw material. Later the *most-favoured-nation* article comes into vogue. This article, which is susceptible of varying forms, has for its object the mutual extension to each of the contracting states of whatever rights and privileges each has already granted or conceded to some third state or states. An early instance of the *most-favoured-nation* article is afforded by the Turkish capitulations (see CAPITULATIONS), under which Turkey conferred certain rights and immunities to the subjects of Christian nations resident in the Ottoman dominions. The endeavours of various European powers, especially France and Germany during the seventeenth and eighteenth centuries, to introduce schemes of tariff reform by means of C. T., led to the formation of a number of treaties between England, those powers, and other European states, designed to lower the prohibitive rates on British exports. Before the Great War, Germany followed the old principle of exclusive C. T., having concluded or renewed in 1909 a number of treaties with Austria-Hungary, Belgium, Bulgaria, and Italy of a strictly protectionist character. The C. T. concluded between 1884 and 1900 regarding districts and spheres of influence in various parts of E., W., and tropical Africa are universal in the recognition of the principle of *most-favoured-nation* treatment to the exclusion of all exclusive privileges. The advent of the Great War brought

about a tremendous upheaval in the world of commerce. Nations which had been on friendly terms for years were now ranged in opposing camps, and the C. T. by which they had been bound for long periods were treated as mere scraps of paper. The whole machinery of international commerce was dislocated, and this dislocation endured not merely for the period of hostilities, but lasted for years afterwards. The bitter feelings engendered by wars among nations are not easily softened, and only time with its healing influence comes to the aid of those Govs. anxious to renew old treaties or conclude new ones. It is a singular fact that when the Treaty of Versailles brought peace to a harassed Europe, disrupted an ancient empire, and placed new states upon the map, the first thing these new states did was to erect huge tariff walls around their recently defined boundaries, all seemingly eager to make their new-found autonomy doubly sure. The depression in trade, which naturally follows all wars, set in after the Great War, and is now (1930) being felt most acutely, not only in Europe, but in all quarters of the world. The unemployment figures in Great Britain, Germany and the U.S.A. have soared to heights undreamt of. Germany has been paying large sums in reparations as required by the Dawes and the Young plans. How long she will be able to do this under present conditions cannot be stated with accuracy, as it is only by success in international trade that she may hope to reap the surplus necessary to meet her obligations, and on all sides her foreign trade is hampered by huge tariffs set up by other nations in the hope of protecting and fostering their own industries. She will no doubt endeavour to establish C. T. wherever possible. In 1929, M. Briand startled the govts. of Europe by a proposal to establish an economic United States of Europe. The proposal is bold in conception, and it is not very hard to realise why it was put forward. The New World, comprising the U.S.A., Canada, Mexico and the different states of S. America, is protected by high tariffs which render it increasingly difficult for the industrial countries in Europe to maintain markets for their products. Europe herself is hampered by the trade barriers which exist in the shape of tariffs between nearly all the countries situated therein. Briand's proposal, in short, is to establish a tariff ring round Europe, allowing the countries within that ring to enjoy the blessings of free trade with each other. *See also*

Hertslet's *Commercial Treaties*, 21 vols.

Commercy, tn., France, in dept. of Meuse, on the Meuse, 20 m. E. of Barle-Duc; possesses a noted castle. Pop. 7000.

Commination, The Office of, a solemn service and 'denouncing of God's anger and judgments against sinners' appointed to be read in the Anglican Church on Ash Wednesday. It is one of the last remains in the offices of the Church of the public acts of penitence which the primitive Church imposed at the beginning of Lent. The present office is based almost entirely on the earlier forms found in the Uses of Sarum and York. The curses contained in Deut. xxvii. against impenitent sinners are read, and the congregation answer 'Amen' to every sentence as acknowledging the justice of the sentences.

Commings (Lat. *Convēnē*), an old div. of France in the prov. of Gascony bounded on the N. by Armagnac, on the E. by Conserans, on the S. by the Spanish frontier, and on the W. by Bigorre.

Comminuted Fracture, one in which the bone is broken into several small pieces, and not merely in one or more places. It may be caused by a crushing blow, and is treated in a similar manner to a simple fracture. A C. F. may further be *compound* or *complicated* (see COMPOUND FRACTURE), when the condition is, of course, more serious.

Commissariat, designated the department responsible for the supply of food and forage for the army in the field. The transport of these articles was also in the hands of this department, as were the responsibilities for the horsing of the Army Medical wagons and the Ordnance Store departments. The C. as a department no longer exists, its functions are now carried out by the Royal Army Ordnance Corps which is responsible for equipment, stores, food, etc., and the Royal Army Service Corps which is responsible for transport.

Commissary, generally the representative of another. An ecclesiastical C. is the deputy of a bishop, by whom the jurisdiction of the latter is exercised in distant parts of the diocese. A military C. is an officer whose duty it is to supervise the provision of food and clothes to an army.

Commission, in business, denotes an agreed reward payable by a principal to his agent in consideration of the agent performing the particular business or service for which he was employed. The right of the agent to remuneration in the shape of C. may depend either on an express term

in the contract of agency, or it may be implied from the custom in the trade, or from the general course of dealing between him and his principal. The agent is not entitled to make a personal profit out of the business into which he may enter on behalf of his principal other than the C. agreed upon. If the agent obtains such a profit he is bound to account for it to his principal (see also COMMISSION, SECRET), and further, the principal in such a case may not only repudiate the contract, but recover any C. he may have already paid to the agent. Some of the commonest kinds of agents for whose services C. is usually paid are factors and brokers. A factor is an agent employed by merchants to buy or sell goods or to discount or otherwise negotiate bills of exchange, bills of lading, etc. A factor employed to sell is customarily entrusted with the goods of his principal, and may or may not sell in his own name. A broker is also an agent employed to dispose of goods or property, but differs from a factor in that he is not usually put into possession of his principal's goods; but he may buy or sell in his own name without disclosing the identity of his principal. A distinction should be drawn between factors' and brokers' agreements on the one hand and C. agencies on the other. A 'C. agency' is not an agency in the true sense of that word. It exists where a C. agent or merchant supplies goods to a foreign merchant, or undertakes to buy or sell goods for another on the best terms he can secure for the other party. It is true he gets not only the price from the other party, but also his C.; but the transaction differs from an ordinary contract of sale in that the C. agent sells to the other at the lowest price and looks to the C. for his profit. A broker differs from a C. agent in that he is no more than a medium for establishing privity of contract between his principal and a buyer or seller of goods. A stockbroker furnishes an illustration of an agent whose right to C. or, as it is termed, 'brokerage,' is usually implied in the agreement to buy or sell stock, being generally reckoned at one-eighth of the amount of the stock bought or sold at the market price on the date of the transaction. Since the Gaming Act, 1892, an agent employed to make bets for another is not entitled to recover any C. that may have been promised him. Such agents may style themselves C. or turf agents, but they are not legally recognised agents.

Commission, Military, in its most general sense, is the document by virtue of which an officer is author-

ised to perform military duty for the service of the State. The royal authorisation to the feudal barons in Norman times presents but few features in common with the grant to-day of a C. in the army. In the Norman period the regular mode in England of assembling an army, either to resist an invading enemy or to accompany the king on a foreign expedition, was by sending a royal command to the chief barons and spiritual lords, that they should meet at a given time and place with their due proportion of men, horses, etc., properly equipped, according to the tenure by which they held their landed estates. These *tenants in capite* appear to have appointed by their own authority all their subordinate officers. But Cs. were occasionally granted by the kings, authorising individuals to raise men for particular service. *Commissions of Array*, as they were called, were also issued by the King of England, probably from the time of Alfred, for the purpose of mustering and training the inhabitants of the shires in military discipline; and in the reign of Edward III. the parliament enacted that no person trained under these Cs. should be compelled to serve out of his own shire except the kingdom were invaded. Of the same nature as these Cs. of array was that which in 1572, when the country was threatened with the Spanish invasion, Queen Elizabeth issued to the justices of the peace in different countries. This privilege of granting Cs. to the officers of the national militia continued to be exercised by the lord-lieutenants of counties until 1872, when the militia became more closely connected with the regular army. Prior to 1871 Cs. were obtained by purchase, except in the artillery and engineers, where they were always conferred without purchase. To a certain extent this was the case with Cs. granted to officers of the line—those cadets who had completed a course of military education at Sandhurst being so appointed. In other cases the price of an ensigncy or C. was regulated by authority, varying from £450 for a C. in an infantry regiment to £7250 for the C. of a lieutenant-colonel in the Life Guards. In proceeding to higher grades, an officer paid the difference between the price of the grade which he left and of that which he entered. But the system of purchase was abolished by royal warrant in 1871 in favour of the present system of entrance into the army by examination, with promotion to higher grades depending on examination in military subjects (as laid down in the Appendices to

the King's Regulations) and (though to a less extent than before the Great War) on seniority. By far the greater number of Cs. are given as the result of success in open competitive examinations. First appointments as sub-lieutenants are, however, also granted to non-commissioned officers with a special recommendation, university students who have passed certain qualifying examinations, and to 'kings' and Indian cadets. Thirty cadet-ships for Sandhurst are given annually to young soldiers from the ranks who show qualities of leadership. The commissioned officers of a battalion of infantry are as follows: Field-officers—colonel, lieutenant-colonel, and major. Regimental officers—captains and lieutenants. Staff-officers—chaplain, adjutant, quartermaster, and surgeon. It may be observed that in the navy the various Cs. are a sort of warrant signed by the lords commissioners of the Admiralty; but the documents are called Cs., and are signed in the name of the king or queen. Under the 'Cardwell' (see CARDWELL, EDWARD, VISCOUNT) reforms civil servants were granted Cs. in certain military departments, e.g. purveyors of the Military Store Department, and others of a like nature. In course of time these officers passed through the stages of 'relative rank,' 'honorary rank,' and quasi-military ranks such as 'surgeon captain.' The rank of 'Quartermaster and Honorary Lieutenant' (captain or major) survived until 1918, when the 'Honorary' was dropped. An innovation took place in 1927 as regards Cs. by the issue of a C. in standardised form for all officers of all branches of the service (with a few exceptions). The forms of C. are three in number: the first gives the King's authority to the holder 'in such manner and on such occasions as may be prescribed by Us to exercise and well discipline in Arms both the inferior officers and men serving' under the holder; the second refers to Chaplains and exhorts the holder 'carefully and diligently to discharge his duty as an officer of the Royal Army Chaplains' Department,' and the third 'gives and grants' the holder 'full Power and Authority to have, hold, and enjoy' his said Honorary Rank. The King's Regulations prescribe when the Command, given by a first C., is exercisable and over what bodies.

Commission, Parliamentary. Neither House of Parliament can proceed to business at the beginning of a session until the king has, either by himself or by a C. appointed by him (called the Lords Commissioners), declared the causes of summons.

This is somewhat formal, of course, because Parliament by no means confines the subsequent meetings of the sessions to discussing the matters mentioned in the Royal Address. As an historical fact, Parliament has proceeded to business without the royal authorisation at all; for in 1788, when Parliament assembled after being prorogued, George III. was mentally incapable, not only of making the speech from the throne, but of appointing any C. to do so for him. The *impasse* was bridged by the Lord Chancellor (*see* CHANCELLOR), doubtless acting in pursuance of his character as keeper of the royal conscience, affixing the great seal to a C. to open Parliament without the authority of the king, but avowedly 'in his Majesty's name.' At the opening of a new parliament the commissioners also direct the Commons to elect a Speaker, and are the body for signifying the royal assent to the election when made. A message from the Lords Commissioners for the purpose of signifying the royal assent to a Bill 'makes a House,' even if forty members be not present (*see* COUNT OUT). In connection with its inherent jurisdiction in the matter of elections of members, Parliament, upon a petition, alleging corrupt practices to the House of Commons, presented within twenty-one days after the return of the member the validity of whose election is disputed, may appoint a C. under the 15-16 Vict. c. 57, to inquire into the facts of the election, provided the petition is followed by the presentation of an address of both Houses for inquiry. Under the Private Legislation Procedure (Scotland) Act, 1899, when an inquiry is directed to be held on a proposed order or group of orders in respect of private Bills, the chairmen of both Houses constitute a C. for the purpose of choosing four members from the panel of commissioners to conduct such inquiry. When completed, these commissioners make their report to the Secretary for Scotland. (*See* May, *Parliamentary Practice*.)

Commission, Royal.—A Royal C. is a body constituted by royal warrant to conduct an inquiry for the purpose of gaining information either as to the operation of existing laws, or on various matters, social, educational, or otherwise. The warrant or 'reference,' expressly defines the particular objects of inquiry, and outside such objects the C. may not go. Instances of such Royal Cs. may be furnished to almost any number: *inter alia* may be mentioned various C. to inquire into the factory system, especially in regard to child labour

(*see* FACTORY AND WORKSHOP ACTS), and the Poor Law Commission at the beginning of the present century to inquire into the whole of the existing Poor Law system. Commissioners are not paid for their services, although compensation may be allowed for time and labour in cases where a high degree of professional skill is necessary. Parliament provides annually for the expenses of Royal Cs. When an inquiry is completed, the C. signs and presents its report to the crown through the Home Secretary. If the commissioners are not unanimous, those in the minority may record their dissent, expressing their personal views in separately signed memoranda, as, for example, in the case of the Minority Report of the Royal C. on the Poor Law System. A Royal C. has no power to compel disclosure of documents nor even to administer an oath or compel persons to give evidence. There is no settled practice as to whether, when counsel appear before a C., they are entitled to cross-examine such witnesses as do volunteer to give evidence. The procedure adopted before the Evicted Tenants (Ireland) Commission in 1892 was to allow questions to be put only through the commissioners themselves; and in the Featherstone Riots inquiry in 1893, Lord Justice Bowen, who presided, followed the same procedure. Much criticism has often been directed to the supposed uselessness of Cs., but although often unproductive of practical results in the shape of legislation, it must be conceded that on numerous other occasions, the greatest good has followed. *See* Todd, *Parliamentary Government*.

Commission, Permanent and Special. Cs. are occasionally set up for special purposes which may ultimately necessitate permanent session; as in the cases of the Charity C., 1853, the Civil Service C., 1855, and the Railway and Canal C., 1873. Other Cs., again, may be set up to meet an exceptional but temporary state of affairs as, e.g. the C. appointed when King George V. visited India, to perform certain of the royal duties in his absence. Judicial Cs., too, have been appointed for unusual cases where the ordinary legal procedure has been inadequate, as e.g. when two High Court judges were appointed to inquire into the Sheffield Trades Union action of 1867; and again, when three judges heard evidence on the charges made against Parnell by the *Times* in 1889.

Commission, Secret. With the object of preventing the bribery of agents, employes, or servants of any kind, especially by the payment of

money by way of commission, without the knowledge of the agent's or employé's principal or employer, the legislature in 1906 passed the Prevention of Corruption Act, which punishes as a misdemeanour with imprisonment for a term not exceeding two years with or without hard labour, or to a fine of £500, or to both; or, *summarily*, with four months' imprisonment or a fine of £50, or both: (1) the corrupt acceptance or obtaining by an agent either for himself or for any other person, *e.g.* his wife or child, any gift or valuable consideration of any kind as an inducement or reward for doing or forbearing to do any act in relation to his principal's affairs or business, and (2) the corrupt giving or agreeing to give anything to an agent as an inducement to act in such a way. 'Agent' includes employés of all kinds. The passing of the Act was generally regarded as a necessity in view of the ever-increasing corruptibility of persons in large business houses entrusted with the power to contract for the supply or purchase of considerable quantities of goods, and of various other persons, such as the servants of local authorities, who could not be reached by the criminal law as it stood prior to 1906. The gist of the offence is the paying or receiving *corruptly*, it being no offence in itself either to reward an agent or for an agent to accept a reward. Prosecutions under the Act may only be instituted by leave of the Attorney-General.

Commissionaires, Corps of. This useful body was founded in 1859 by Captain Sir Edward Walter, K.C.B. At its inception it was composed exclusively of a few wounded soldiers, the founder's idea being to make the association a means of obtaining some form of employment for wounded soldiers of good character. The corps soon developed into a large institution, and its membership, which comprises pensioned soldiers, sailors and airmen is 4894 (1930); and there are branch institutions of the corps in Birmingham, Bristol, Leeds, Liverpool, Manchester and Newcastle-on-Tyne; Edinburgh and Glasgow; and Belfast. The headquarters are at Exchange Court, 419A Strand, London. The men wear a distinctive uniform, and are generally engaged in light duties of a temporary or permanent character.

Commissioners, Ecclesiastical, see ECCLESIASTICAL COMMISSIONERS.

Commissioners, Lords, see ASSENT, ROYAL.

Commissioners, Naval, see ADMIRALTY.

Commissioner of Police, the official in whom is vested the highest admini-

strative authority in the police force of Great Britain. In 1928 General Julian Byng, first Viscount of Vimy, was appointed Commissioner of the Metropolitan Police, with headquarters in Scotland Yard. This official is assisted by a deputy commissioner, three assistant commissioners, three deputy assistant commissioners and five chief constables. The City of London has its separate police establishment, under a Commissioner and assistant commissioner; the police force numbers about 1200 men. Lt.-Col. Sir Hugh Stephenson Turnbull was appointed C. of P. for the City of London in 1925.

Commitment, a warrant or order of a court of justice of the peace directing a sheriff, bailiff, or constable to take a named person to the common gaol, whether on remand or to await trial. If the arrested person is already in gaol, the C. directs the governor to detain the person named for a specified period, and either to produce him or discharge him on the expiration of such period. Apprehension without a warrant is not C. in the proper sense. The Habeas Corpus Act, 1679, provided that a gaoler was not justified in receiving a prisoner unless the C. was in writing. A C. must state the offence for which the prisoner is detained.

Committee of Imperial Defence, originated in 1890 as a select combination of civil and professional advisers on naval and military matters, formed with the object of securing a greater degree of efficiency of preparation for political contingencies and for joint action in time of war. At its inception it was a naval and military council whose principal function was to consider the estimates with a view to determining the relative importance of the respective demands of the two services. During the Great War it was regularly presided over by the Prime Minister, while the members included the War Secretary, the First Lord of the Admiralty, the head of the Army General Staff, the First Sea Lord, and heads of the Army and Navy Intelligence Department. The C. of I. D. is now concerned primarily with questions of imperial defence and only secondarily with the estimates. The Prime Minister is the Chairman and the Secretaries of State of the Service Departments, the Dominions, Colonial and Foreign Offices and other interested ministers are members. The overseas Dominions generally make provision for the defence of their immediate areas, but the general strategical defence of the Empire is undertaken by the Imperial Gov., through the C. of

I. D. which co-ordinates the work of the sea, land and air forces. One of the most important sub-Committees is that of the Chiefs of Staff of each of the fighting services, whose function is to draw up plans for defence for submission to the main Committee and for the execution of the accepted policy of the Committee. Such a Committee possesses the element of continuity which is vital to co-ordinated plans for Imperial Defence. The Secretariat of the Committee is located at 5 Whitehall Gardens, London, and the Secretary, who is the secretary to the Cabinet, is assisted by staff officers from each of the fighting services. A small permanent secretarial staff records the proceedings at its meetings, the discussions at which are secret and confidential. The duties of the C. of I. D. are ancillary to the cabinet, being in the main advisory and informative. The plenary sittings of the committee take place some six or seven times a year. Ordinarily the committee conducts its business through permanent sub-committees.

Committee on Public Information was set up in the U.S.A. by President Wilson in April 1917 to act as an official channel for all news relating to the war activities of the Allies. The Chairman of the Committee was George Creel, a prominent journalist, and the Secretaries of State for War and the Navy were members. The Committee issued a daily bulletin of all authentic news, and also undertook all forms of propaganda work. Later, a Censorship Board was established, the Chairman of the Committee being a member of the Board.

Committee of Public Safety (*Comité du Salut Public*), a body which was co-opted by the members of the Fr. Convention in April 1793. The powers entrusted to it were at first merely those of supervising the actions of the executive, but by degrees it usurped all the powers of that body. The revolutionary Gov. was conferred on the C. of P. S. by the convention on Dec. 4, 1793. Local committees were instituted in all the communes to try the suspected persons, and law and order were henceforth non-existent in France. Robespierre was the leader of the *comité* till his fall in 1794; in October of that year a new constitution introduced a directorial Gov.

Committees, Parliamentary. There are four *Standing Cs.* of the House of Commons, the A, B, and C. Cs. and the Scottish C. They consist of not less than sixty, nor more than eighty, members appointed by the C. of Selection. This last-named C. is composed of eleven members chosen

by the House at the beginning of each session, and besides nominating members to standing Cs. it classifies all private Bills and allocates them to the different standing Cs. All Bills, other than money Bills, must be referred after second reading to a Standing C. unless the House orders otherwise, when they are referred to a C. of the whole House, or to a Select C., or sometimes to a Joint C. of the two Houses, consisting of two members from each House. The time for amending a Bill is when it is in C., the clauses are discussed in detail, and amendments moved in the order in which they come in the particular clause; after the consideration of new and postponed clauses and schedules the C. reports to the House. But where a Bill has been referred to a Select C. it must afterwards go through a C. of the whole House. When the House goes into C., the Speaker vacates the chair and the Chairman of Cs. takes his place. A Bill may be at once put down for third reading, when it has gone through a C. of the whole House without amendment; but where it comes up from a Standing C. it may be again amended on the report stage before being set down for third reading. Money Bills may only be introduced in the House of Commons by authorisation of a resolution in C. of the whole House moved by a minister. The C. of Supply and the C. of Ways and Means are Cs. of the whole House, formed at the beginning of a session, immediately after the debate on the Address is closed. The former C. discusses the naval, civil and military estimates for the ensuing year, and allocates the revenue of the country. The latter C. authorises grants out of the Consolidated Fund (*q.v.*) and votes the necessary taxes for the year. The *Railway and Canal Bills C.*, consisting of eight or nine members chosen by the C. of Selection, performs similar functions to the latter C. with regard to railway and canal Bills. The *Police and Sanitary C.*, also nominated by the C. of Selection, considers Bills dealing with sanitary and police matters. The C. of Privileges deals with matters appertaining to the anct. privileges of the House. The C. of Public Accounts, consisting of eleven members nominated at the commencement of each session, examines public accounts submitted to it by the comptroller and auditors-general. See CASTING VOTE, CHAIRMAN.

Commodore, in the royal navy, a temporary rank between that of an admiral and that of a captain. A C. is usually appointed for a squadron of three or more ships detached from the

main body on special service. There are two classes of Cs., of which the first hoists his pennant, white with a red cross, at the main, and holds the temporary rank of a rear-admiral. A C. of the second class hoists his pennant at the fore, and has no captain under him in the ship. A C. may not hoist his pennant in the presence of an admiral without permission. The title is often given by courtesy to the senior captain of a squadron of several ships. In the U.S.A. navy, the title was purely a courtesy one before 1862, applied to captains who commanded a squadron. In 1862 it was made a permanent rank equal to that of brigadier-general in the army, but was abolished in 1899. The title belongs also to the president of a yacht club and to the senior captain of a fleet of merchant vessels.

Commodus, Lucius Aelius Aurelius (180-192), known also as Marcus Antoninus, Emperor of Rome, son of Marcus Aurelius and Faustina, was b. at Lanuvium in A.D. 161. In spite of a most careful education, he early showed a propensity for low company and debauchery. His later life fulfilled completely the promise thus given. It was spent in dissipation of all kinds, and his lavish expenditure on gladiatorial exhibitions exhausted the treasury. He himself fought as a gladiator in the shows on numerous occasions. At last Marcia, his mistress, and two other members of his household, finding their names on the list of those to be killed, gave C. poison, and he was then strangled by a wrestler named Narcissus.

Common, Right of, the right of taking a profit in the land of another in common with others. It may either be such a right as is enjoyed in common with others to the exclusion of the owner of the land, or it may not exclude the owner of the land. The commoner has no interest or estate in the soil of the land on which he has a R. of C. The profits which may be the subjects of common right are the natural produce of land or water, such as grass and herbage, turf, wood, and fish. Hence the four species of 'commonable' rights are called common of *pasture*, the right to pasture one's cattle on a particular piece of land; common of *turbary*, the right to cut turves; common of *piscary*, the right to take fish from a particular piece of water; and common of *estovers*, the right to take wood for fuel, or for agricultural implements. Where a person enjoys a R. of C. over land by reason of his title to other land, the common is called a common *appendant*, e.g. freeholders of a manor may have the right to pasture a certain number of

beasts on the manorial waste lands. A R. of C. is said to be *appurtenant* when claimed (a) by copyholders; (b) by freeholders of a manor when they claim independently of their freehold interests; (c) by freeholders not of a manor. Copyholders may claim by special custom, while freeholders' rights may depend upon grant or prescription (i.e. title by user). There are various ways of extinguishing Rs. of C. otherwise than by buying the commoner out, e.g. the enfranchisement of copyhold to which a R. of C. is annexed extinguishes the right. The most usual mode of extinguishing Rs. of C. in modern times is by inclosure under Act of Parliament.

Common, Tenancy in, tenants in common are they who own lands or tenements, whether by a freehold or a leasehold title, in common as distinct from joint ownership. The characteristic feature of joint ownership is that each owner has an equal aliquot share of benefit in the undivided whole; and that, assuming no proceedings for severance, the whole ultimately goes to the survivor. In T. in C. each is the owner of an undivided share in the whole, the quantum of his proportionate part depending on the terms of the grant or devise. It is solely the fact that the tenants are all interested in the possession of the same property that constitutes them tenants in common; and each one of the tenants in common may derive title from a different instrument, whereas joint tenants derive one and the same title from one and the same instrument. There may be tenants in common of other things besides land, as, e.g. of £5000 consols, or a racehorse. The undivided shares of tenants in common no less than the quantity of their interest or estate may be equal or unequal, e.g. A may have the freehold inheritance of two-thirds of a particular park, while B may have only a life estate in the remaining one-third. But so long as B's lesser interest exists, A and B are tenants in common. For all the purposes of sale, disposition by will, or transmission on intestacy, the undivided shares of tenants in common are like separate property. Enjoyment must be in common, if possible, if not, the tenants must come to some agreement about the mode of enjoyment, and, if they cannot agree, they must sell the thing and divide the proceeds in the proper proportions. Equity (q.v.) is said to lean against joint tenancies, and the courts endeavour to construe all instruments in such a way as to create tenancies in common rather than joint tenancies.

A T. in C. ceases when the ownership of the several shares subsists in a single individual; it can also be destroyed by means of a partition suit in equity, unless, indeed, the thing be indivisible, when a sale must be effected.

Common Council of London, The, constitutes with the Lord Mayor and Aldermen, the Corporation or governing body of the City of London. The members of the C. C. are elected by the various wards in the city, but as far back as the fourteenth century they were elected by the trades, and not by the wards. The expression C. C. was not used in the earlier times, but it is set out in the election lists of 1347 that 'the persons under written were chosen in their respective wards to come to the Guildhall of London, when they should be warned thereto to treat of business touching the city.'

Commoner, a term of varying import denoting primarily any person under the rank of a peer. It also means a member of the House of Commons; one who has a title to a right in common (see COMMON, RIGHT OF); and, at Oxford or Cambridge, a student of the second rank, i.e. one who is neither a scholar nor an exhibitioner of his college.

Common Form. In the great majority of causes of action the material circumstances are such that judgment can generally be entered in C. F., i.e. in accordance with the long-established practice of the courts. In such cases nothing more is required than to fill in the form of the judgment the names of the parties, the dates, the amount of the damages, etc. From the simplicity of the issues in most common law actions, the C. Fs. of judgment are usually far shorter than in the case of judgments, orders, and decrees (*q.v.*) in equity (*q.v.*) suits. Nevertheless the usage of the Chancery Courts has evolved an equally stereotyped set of precedents for use in every conceivable class of case. The term C. F. is not, however, restricted to a form of judgment, but may be regarded as synonymous with precedents in the sense in which that word is used to denote any legal document whatever drafted in accordance with common practice.

Common Good, in Scots law, denotes all the property of a burgh (*q.v.*) held by the corporation for the general good of the community. C. G. may be either alienable for the debts of the burgh, or inalienable. The lands, mills, and fishings of a burgh which are generally leased for periods customary in the district, and houses, which are ordinarily let for a year, are alienable. Public lands and build-

ings, e.g. churches, town-halls, market places, and common greens, and other property dedicated by grant, Act of Parliament, or otherwise to the special use of the burgh are inalienable. Inquiries have been instituted from time to time ever since 1662 into the mismanagement and maladministration of C. G., the object of the anct. grant of which was to enable the burghs to meet the Crown burdens and to discharge their local and municipal duties. These inquiries were productive of but little result, but in 1822 Sir William Rae's Act was passed to regularise the administration of the affairs of burghs royal, and under the Town Councils Act, 1900, the local body must make out a yearly account of the C. G. and the revenue arising therefrom.

Common Law, a term of varying import, the different senses or rather shades of meaning of which are to be gathered by contrast with a number of opposed terms. Broadly speaking, the C. L. of England is the universal law of the realm, the fundamental principles of which, based on general customs, have existed from time immemorial, while their subsequent development to meet every new combination of circumstances has been the peculiar province of judicial interpretation acting avowedly on established precedent. In this broader sense C. L. as opposed to *lex scripta*, the written or statute law, is styled *lex non scripta*, or the unwritten law of the kingdom. Blackstone includes in the *lex non scripta* not only *general customs*, but also the particular customs of certain parts of the kingdom and such particular laws as are by custom observed only in certain courts and jurisdictions, and explains the description *non scripta* on the ground that the original institution and authority of such parts of our law were not set down in writing, as Acts of Parliament were, but received their binding force by long and immemorial usage and by their universal reception throughout the kingdom. In thus adhering to the classic distinction, Blackstone points out that those parts of the C. L. which he included in the *leges non scriptae* had long since lost their purely oral character, and were to be found in the records of our courts, in books of reports, and in treatises by writers of established repute. He accordingly identifies C. L. in its stricter significance with one class only of the 'unwritten' laws, viz. *general customs*, which he describes as the laws by which proceedings in the ordinary courts of justice are directed, e.g. that the eldest son alone is heir to his ancestor; that a deed is of no validity

until delivered. *Particular customs*, as opposed to *general*, affect only the inhabitants of particular districts, e.g. the right of the *youngest son* to inherit by the custom of *borough-English*. The third branch, *particular laws*, connote the *civil* or Rom. municipal law, and *canon law* or Rom. ecclesiastical law compiled from the opinions of Latin fathers, the decrees of general councils, and papal bulls, which systems have no authority in England other than that they may have received by immemorial usage in certain particular cases. In its narrower or contrasted sense, C. L. or general custom crystallised by judicial decisions into positive law, is further and pre-eminently opposed to equity (*q.v.*), or that body of rules which savour of the *jus naturale* of Rom. law, and were originally formulated by the chancellor acting as the keeper of the king's conscience, and developed by a long line of Chancery judges, for the purpose of mitigating the rigour, formalism, and technicality of the C. L. For centuries equity existed side by side with the C. L. as a body of opposed rules gradually growing as technical in its own way as the C. L., until in the year 1873 the Judicature Act abolished the distinction by enacting that the rules of equity should prevail. But though nominally equity and C. L. are fused, practically the distinction is retained by reason of the fact that certain subjects, e.g. trusts, the interpretation of wills, etc., were assigned to the Chancery division of the High Court, and, further, from the fact that the King's Bench or Common Law Courts have provided no machinery for carrying out equitable judgments.

Common Measure, the name applied in music to time or rhythm consisting of two or four beats in a bar. It is especially applied to 4-4 time, four crotchets in a bar, as this time is the most common of any.

Common Pleas, Court of, one of the old Common Law (*q.v.*) Courts; before 1881 it existed as a superior court of record, having jurisdiction over England and Wales in all *common pleas*, i.e. civil suits between subjects. Like the present King's Bench Division and the old Court of Exchequer, it was an emanation of the *Curia Regis*, or Committee of the Commune Concilium or Great Council of the Realm of Norman times. The term *common pleas* was used in contradistinction to *pleas of the crown* or criminal causes. By Magna Charta, Article 17, it was provided that the court should be held in a fixed place instead of following the king, an enactment which led to

the establishment of the C. of C. P. at Westminster Hall. By the end of the thirteenth century it had acquired, like the other Common Law Courts, a separate staff of judges, distinct from the permanent members of the *Curia Regis*. The number of its judges varied considerably from time to time, but at the period prior to its abolition it was composed of five judges, one of whom was Chief Justice and the other four puisne justices. Before the passing of the Real Property Limitation Act, 1833, which abolished all *real* and *mixed* actions except that of *ejectment*, it had exclusive jurisdiction in all *real* actions, or actions concerning the freehold title to lands. After 1833 this jurisdiction was restricted to actions of *dower* and *quare impedit*, i.e. actions by a patron against a bishop for refusing to admit and institute to a vacant benefice the clerk nominated by the patron. In *mixed* actions, i.e. those in which a claim for damages was made along with a claim for the specific recovery of some tenement, and in *personal* actions—that is, actions on contract and tort, or civil injury—the C. of C. P. and the two other Common Law Courts of King's Bench and Exchequer exercised concurrent jurisdiction. It was also constituted a court of appeal from the decisions of revising barristers on disputed franchise claims, a function now delegated to the Divisional Court. By an Act passed in 1831 it was provided that the judgments of the C. of C. P. could only be reversed by the judges of the King's Bench Court and the Court of Exchequer sitting as a court of error in the Exchequer Chamber, the final appeal being by writ of error returnable to the House of Lords. By the Judicature Act, 1873, the C. of C. P. was merged in the Common Pleas Division of the High Court of Justice, but was finally transferred to the King's Bench Division by an order in council issued in 1881.

Common Prayer, Book of, see PRAYER, BOOK OF COMMON.

Common Room, an apartment in a monastery, corresponding to the C. R. of universities where dons take their wine after hall. A fire was constantly kept burning for the use of monks, and a master monk presided.

Commons and Enclosures. Commons are wastes and pastures which have never been exclusively appropriated by any individual, but used in common by the inhabitants of a parish or district. The effect of maintaining all the cattle of a parish on the commons for a great part of the year was that only so much was kept in meadow as would produce hay to feed the cattle in winter weather,

with the result that arable land was not well cultivated, and no one would undertake the responsibility either of draining or clearing the Commons of woods or of manuring them. Hence most of the commons and common fields in Great Britain were divided and enclosed by awards made in pursuance of a series of Inclosure Acts passed during the first forty years of the nineteenth century. Common fields differ from commons in that they are divided for the purpose of cultivation; but as soon as the crops off the ground, the cattle of the parishioners have the right of pasture over the whole common. As the common-field system is economically unsound, common fields have likewise fallen under the operation of the Inclosure Acts. By the Commons Preservation (or Regulation) Act, 1876, it is a public nuisance to encroach upon any common; and enclosure by the Ministry of Agriculture (replacing the old commissioners) may only take place if shown to be beneficial both to the neighbourhood and private landowners. Of more recent years there has been a very general reaction against the enclosure of common lands, and a society called the Commons and Footpaths Preservation Society was formed for the preservation and protection of common land, village greens, or open spaces, bridle paths, waste lands, and rights of way. *See* ALLOTMENTS.

Common School, *see* EDUCATION: *United States*.

Common-sense, Philosophy of. bases all axioms and reasoning on certain fundamental beliefs. Among these conceptions may be named the universality of causality, and the belief in the reality of the material universe apart from the mind of the person perceiving it. These conceptions are all recognised as true by the common sense of mankind. The school is chiefly represented by Thomas Reid and the Scottish school. *See* Seth's *Scottish Philosophy*, 1890; McCosh's *Scottish Philosophy from Hutcheson to Hamilton*, 1875, etc. —*See also* BERKELEY, GEORGE.

Common Serjeant, a judicial officer of the City of London whose functions are: (1) To sit at the Central Criminal Court (*q.v.*) to aid the Recorder in the disposal of criminal cases; (2) to act as a judge of the Mayor's Court of London for the trial of civil causes; (3) to act as legal adviser or law officer to the city corporation, and to act as counsel in court for the corporation if called upon; and (4) to perform certain duties at elections of the lord mayor, sheriffs, and other corporate officers. The C. S. is next

in rank to the Recorder. Before 1888 he was elected by the Court of Common Council, since then the appointment has been vested in the Crown. The C. S., who must be a duly qualified barrister, is not disqualified from a seat in parliament. The salary of the Common Serjeant is at present £3000 a year.

Commons, House of, *see* PARLIAMENT.

Commonwealth, a term generally used as the equivalent of the Latin *respublica*, of which it is a translation, and in this sense of a form of government without a monarchy it is particularly applied to that period of Eng. history between the death of Charles I. and the accession of Charles II., from 1649 to 1660. The period is sometimes limited to Cromwell's protectorate, which ended in 1658. C. is also the official designation in U.S.A. for the States of Massachusetts, Pennsylvania, Virginia, and Kentucky.

Commonwealth of Australia, The, came into existence on Jan. 1, 1901, when the five Australian colonies of Great Britain united with Tasmania in a federal state under this name. The Commonwealth thus includes Tasmania, New South Wales, Victoria, Queensland, S. Australia, and W. Australia. Before this time various attempts at federation had already been made, notably in 1897. The present instrument was submitted to the states in 1899, and was not at first accepted by Queensland and W. Australia. These two colonies joined later, but in 1930, W. Australia began to agitate for withdrawal. The constitution is plainly modelled on that of the U.S.A., whose influence shows most clearly in the freedom accorded to the particular states (the term 'colonies' being no longer used). To them belong all powers not expressly delegated to the central Gov. This Gov. consists of: (1) the representative of the British sovereign, (2) the Senate, (3) the House of Representatives. The Senate is composed of members elected for a term of six years, six from each state. Members of the House of Representatives are elected for three years, the number for each state varying from five upwards. The regular jurisdiction of the Federal Parliament comprises: (1) the question of taxation, currency, etc.; (2) the defence of the Commonwealth; (3) the regulation of home and foreign commerce, shipping etc.; (4) external affairs, emigration, immigration, etc.; (5) control and regulation of railroads; (6) the regulation of criminal and civil justice; and various other less important matters which it is impossible to

name in detail. See Quick's *Annotated Constitution of the Australian Commonwealth*.

Commune, in feudal times in France, meant a body of burgesses in a town which had been granted a charter of incorporation by the king. Subsequently it came to denote any body of persons in a parish or district organised for purposes of local government, and subordinated to the central authority of the state. The C. is now the unit of local governmental administration in France, and is composed of the citizens, a council elected by the C. itself, and a *maire* appointed by the state.

Commune of Paris, 1871, the name given to the municipality proclaimed by the insurrectionist element in Paris on March 18, 1871, while the victorious Ger. army was encamped on the heights outside the city. Some five months after the proclamation, in Sept. 1870, of the Third Republic, the National Assembly, elected after the capitulation of Paris, succeeded to the functions of the provisional Government of National Defence. This Assembly contained a majority of Monarchists, but not being unanimous on the choice of the monarch, resorted to the temporary expedient of compromising its difficulties by leaving matters in the hands of the republic. The Assembly hoped by this means to curry popular favour by taking no active part in the imposition of the war indemnity and then afterwards to restore the monarchy at leisure. But the knowledge that the Assembly, with its anti-Republic feelings, was about to disband the National Guard kindled the sparks of disaffection among the revolutionary spirits of the city, with the result that the latter proclaimed a commune in accordance with the traditions of that improvised 'town council' formed of 'the elixir and chosen men of Sansculottic patriotism'—the Commune of 1792. The consequence of this reassertion of vague democratic polity was that the National Assembly and the garrison troops repaired to Versailles, whence the latter, reinforced by the liberated Fr. soldiers of the Sedan and Metz armies, returned to conduct a second siege of Paris under the eyes of the silent Ger. army. The Communards, having burnt the palace of the Tuileries, the Hôtel de Ville, and some other public buildings of historic interest, were themselves speedily made the victims of the fury of the Fr. regulars. Four days after the burning of the Tuileries, on May 28, 1871, Paris was taken by storm, some 20,000 to 30,000 men and women having been shot in the streets of the

city, the Commune was deposed, and a number of its chiefs executed or transported. After the liquidation of the war indemnity, the Third Republic reasserted itself, notwithstanding the excesses of the Commune, and with increased support at the ensuing by-elections established itself as the most enduring form of constitution France had known for a century. There is but little theoretical relationship between the C. of P. 1871, and that of the Fr. Revolution. The latter was the spontaneous expression of the hatred of the Parisian populace for the Fr. aristocracy. The Girondists, having fanned the flame of revolt against the tyranny of the privileged classes, were utterly unable to destroy the race of giants to which they had given birth, and Paris fell under the Reign of Terror, fomented by the triumvirate of Robespierre, Marat, and Danton. But the Commune of 1871 was an insurrection motivated by a desire for local or self-government for Paris, and the democratic expression, loose and incoherent though it might be, of dislike for the prevalent centralisation (*q.v.*). The point of contact, however, between the two Communes is that they were essentially the instruments of the mob; but while the earlier Communards based their pretensions on no sounder theories than the doctrine of an original social compact and the moral superiority of the state of nature promulgated by Rousseau, and ended by nothing clearer than a frenzied cry for equality, liberty, and fraternity, the intellectual chiefs of the later Commune displayed strong socialistic views, which, even if theoretically vague, nevertheless contained in them a clear expression of revolt against economic oppression by the moneyed classes. See Lissagaray's *Histoire de la Commune de 1871*, (Eng. translation, Aveling), 1886; Karl Marx, *The Civil War in France*; E. Belfort Bax's *Commune of Paris*.

Communion (Lat. *communio*, participation), the participation in the sacrament of the Lord's Supper. Since only those holding the faith of the Church were admitted to this rite, the word C. became applied to the relation of those who are united by belief in the tenets of any particular religious body or church. Hence, we speak of the Rom. C., the Anglican C., and the Lutheran C. *Communion in both kinds* is a theological term signifying that in the celebration of the Lord's Supper, communicants receive the Sacrament under both the species of bread and wine. This method was undoubtedly the general practice of the primitive Church, but

in the early Middle Ages the custom of withdrawing the cup from the laity gained ground. The Council of Trent in 1563 made this practice binding on the Rom. Church, which body alone retains the custom of C. in one kind.

Communism, in its limited application, means the common management of industry and the sharing of its fruits. We have the common management of parks, schools, public pleasure grounds, etc., and practical C. in water which is supplied free to the poorest inhabitants of our cities. Then there is a C. in the case of commodities which are cheap. As a social theory, C. finds but few adherents, and except for very limited periods practical experiments in this direction have met with little success. In early times, property was held in common, and individual ownership arose out of C. Many religious orders both taught and practised C. during the Middle Ages. Sir Thomas More's *Utopia* is the first exposition of C., and was intended to be a picture of ideal society. Saint Simon and Fourier are also generally considered to be communists, though their systems do not demand absolute equality. Perhaps the best example is Cabet's *Voyage en Icarie*, published in France in 1842, and his proposals led to the practical result of communistic settlements being established in various places in the U.S.A. New interest was aroused in C. by the establishment of the Soviet system in Russia following the revolution of 1917. Opinions differed widely on the question whether C. or Socialism was the foundation of this movement; but as Socialism is a distinct party name in many countries indicative of parties which have undertaken the responsibilities of office, it is commonly agreed that the Russian movement required a word of rather more extreme connotation. The C. of Russia aimed at much more than the socialisation of wealth, for it seized the means of wealth-production. In the deliberate and avowed policy of the leaders of the movement some startling and paradoxical methods were upheld. It was contended that revolution must precede good order, and that a dictatorship was essential in order to procure national equality. The milder Fabian notions of gradual change were openly repudiated and the necessity of tearing down existing systems, at no matter how great an immediate cost before new ones could be devised, was proclaimed. Russian C., successful at all events in revolution and in the establishment of a dictatorship, proceeded along the two definite lines of education and

propaganda in order to establish its future; but even the vigorous prosecution of these methods did not lessen the apparent need for ever-increasing powers of dictatorship. C. in Britain and other countries is a title frequently adopted by politicians for whom the prevailing Socialist teachings are not sufficiently drastic. During the 1919 General Election in Great Britain, candidates adopting this description put up in several constituencies. But the movement as a whole appeared to gain few adherents. Since then it has made no headway, the common opinion being that it is a movement subsidised by Moscow. See J. S. Mill's *Political Economy*; R. W. Emerson's *Reminiscences of Brook Farm*; and Nordhoff's *The Communistic Societies of the United States*.

Communist Party. The C. P. of Great Britain (C.P.G.B.) was founded in 1920 to propagate the principles of Communism (*q.v.*), many of its founder members having belonged to Socialist bodies, particularly to the Social-Democratic Federation. At the present time (1931) no great success has attended the Party, and its one member in the House of Commons lost his seat in the 1929 General Election. The Party is affiliated to the Communist International, or 'Third International,' whose seat is in Moscow. It follows from this that the ideas of the Russian Communists (who control the Russian Gov.) are paramount. In Great Britain the party membership is active but small, numbering between two and three thousand, but in Germany in the 1930 election, the C. P. polled about five million votes and its representatives form the third largest party in the Reichstag. There is also a large C. P. in Czechoslovakia.

Community Foundations or Trusts exist in the U.S.A. for the administration of charitable funds. These funds are the accumulation of grants from private donors, and for the majority of C. F. banks act as trustees. The first C. F. was founded in 1914 under the auspices of the Cleveland Trust Company, and was called the Cleveland Foundation. There are now about sixty C. F., and each is especially concerned with the welfare of the town in which it exists. The largest C. F. are in Cleveland, Chicago, Boston, Indianapolis, and New York. The New York Community Trust was founded in 1923, and now distributes funds to the extent of 120,000 dollars a year from a capital of 6 million.

Community Kitchens were or-

ganised during the Great War, and have continued since either as soup kitchens where people may buy cooked food cheaply or as invalid kitchens where specially-cooked food may be obtained. In the U.S.A. the term C. K. is used to denote any community dining-place outside the home. With the absence of kitchens in many modern flats, C. K. have become increasingly popular, both in England and America, and many large blocks of flats possess their own C. K. These kitchens use various machine-methods which ensure cleanliness and quickness — mixing machines, washing-up machines, etc.

Community Singing was popular in the Middle Ages, but the folk-songs and carols in use in medieval England were often old pre-Christian songs which had been adapted. Modern C. S. began in America about 1914, and has since spread to England. Sing-songs take place indoors or outdoors, and are even arranged for the lunch hour. The community may be small or large, sometimes hundreds of people, and there should be a leader to lead the songs and conduct. In C. S. on a large scale the leader's voice is often broadcast, and a band may accompany the singers. Programmes consist of folk-songs, modern popular songs, negro spirituals, marching songs, and carols. Easter carolling and Christmas carolling have also been revived.

Comnena, Anna, see ANNA COMNENA.

Comnenus, see ALEXIUS COMNENUS.

Como: (1) Prov. of N. Italy, part of Lombardy, to the S. of the Alps. It is a beautiful region, including within its bounds many of the most beautiful Italian lakes. It is no less fertile than beautiful, producing wine, corn, silk, olives, and fruit. Its manufactures of silk, cotton, iron, glass, paper are not so important. (2) City and episcopal see of Lombardy, cap. of the prov. of C. It is situated at the S.W. end of Lake Como, 30 m. N.W. of Milan by rail, and is beautifully situated in a valley enclosed by hills which are clad with luxuriant gardens and plantations of olives and oranges. The city contains some important buildings, first among which may be named the cathedral, commenced in 1396, which has been somewhat spoiled by eighteenth-century baroque additions. The greater part of the building was erected in the fifteenth century by the architect Rodari, and contains some fine sculpture by him. The Public Hall, known as Il Broletto, a large arcaded structure in black and white marble, dates from 1215. Other important architectural monuments are the churches of St. Abondio (Romanesque eleventh century), St.

Fidele (Romanesque twelfth century), and the ruined castle of Baradello. The city museum is contained in the Palazzo Giovio. C. is a celebrated tourist resort, and its commerce in silk, cotton, etc., is very important. Historically, the city is known as the birthplace of both the elder and the younger Pliny, of Cecilius Statius, the second-century historian, of the physicist Volta, and of several popes. In 1127 it was entirely destroyed by the Milanese, but was rebuilt thirty years later by the Emperor Frederick I. as a headquarters of the Ghibelline faction. After frequent wars with Milan, it fell into the hands of the Viscontis in 1335, and shared henceforth the fortunes of that city. Pop. 46,500.

Como, Lake, an Italian lake, 25 m. N. of Milan. Area 55½ sq. m., 43 m. from end to end. The surrounding country is very beautiful. The lake lies at the foot of the Bernese Alps. It is chiefly formed by the R. Adda, which enters it at its N.E. and issues at its S.E. extremity.

Comorin Cape, the most southerly point of India. It is low and sandy, and not visible from vessels at a distance of more than 16 m.

Comoro Islands, a group of is., belonging to France, situated in the Indian Ocean, midway between Madagascar and the African continent. There are four chief is., viz. Great C., Anjouan (or Johanna), Mayotte, and Moheli (or Mohilla). The is. are of volcanic origin, and are extremely mountainous, but the soil is fertile. The largest and most westerly is the Great C., about 35 m. long and 12 m. wide. Its highest point, Mt. Kartola, is 8500 ft. in height, and the N. part of the is. consists of a plateau some 2000 ft. above the sea. Next in size is Johanna, 30 m. long and 20 m. at its greatest breadth. Here the land rises to a central peak, 5000 ft. high. Mayotte, 21 m. long, while Moheli, 15 m. long. The Fr. headquarters are at Zaudzi, a small is. off the coast of Mayotte. The fertile soil produces rice, maize, sugar-cane, cotton, coffee, and all tropical fruits, while turtles are caught abundantly in the neighbourhood, and form an article of export. The is. were first visited by Europeans in the sixteenth century, and the is. of Mayotte was ceded to France in 1841. The others became Fr. in 1886. The pop. is Kaffir, Arab, and Malagasy. Pop. 118,700.

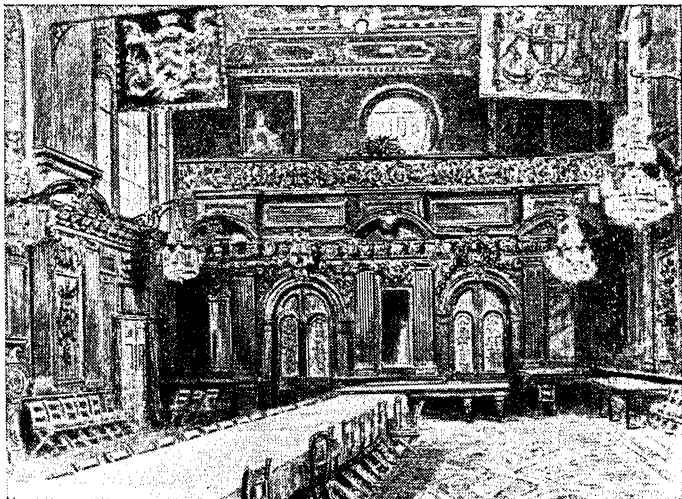
Compagnie Générale Transatlantique, a Fr. undertaking formerly known as the Compagnie Générale Maritime, founded in 1855 by the brothers Emile and Isaac Pereire.

In 1861 the company undertook the first contracts for Fr. mails to the U.S.A., the Antilles, and Mexico. In 1898 a new postal contract necessitated larger and faster vessels. A weekly service now runs to New York, with communications with British and Algerian ports.

Compañía Transatlántica, a Spanish steamship company with head offices at Cadiz; owns a good fleet of modern steamers which trade between Cadiz and the W. Indian Is.

Companies, City (*i.e.* of the City of London), also known as **Livery Com-**

regulating trade matters, especially as to apprenticeship, good production, etc. Their power gradually fell into the hands of the wealthiest members, and passed away from the trade altogether, and now they have little or no connection with the trade to which their name attaches, except so far as their educational funds are devoted to special or technical education. Many of the C. are possessed of great wealth, and large sums are held in trust for specific charities, etc. The twelve greater C., with their total income, in order of civic pre-



THE HALL OF THE MERCERS' COMPANY

panies, the name given to certain societies or corporate bodies existing in the City of London. These companies began in the Middle Ages, and are a survival of the industrial and municipal system of trade organisations known as guilds or gilds. In the reign of Henry II. (1212) the Company of the Goldsmiths and that of the Pepperers, later incorporated with the Grocers, are mentioned, and also 'Guildhall.' Edward III. was a member of the Linen Armourers and Merchant Taylors, a signal instance of royal favour. The name of 'Livery' comes from the distinctive costume or livery that the members of the C. wore. Originally they were genuine corporations of the members of the particular trade, and had important and valuable functions in

cedence are here given: Mercers, £111,000; Grocers, £38,900; Drapers, £78,000; Fishmongers, £50,226; Goldsmiths, £58,000; Skinners, £66,000; Merchant Taylors, £50,000; Haberdashers, £58,000; Salters, £22,000; Ironmongers, £23,000; Vintners, £11,000; Clothworkers, £60,000. These C. have halls of their own in the City; the anct. halls having for the most part suffered in the Great Fire, the existing halls are fine and comparatively modern. Many C. possess fine old plate, pictures, and other valuable artistic property. There are sixty-four other C. still in existence, their incomes varying very much. The names of some of them, such as the Loriners, the Girdlers, the Fletchers, are interesting survivals of old trades.

The lord mayor, sheriffs, city chamberlain, and other corporation officers are elected by the liverymen of the C. C., as freemen of the City, a right that has been left them, though many of their former privileges have been taken away. The C. are ruled by the court of the master and wardens, chosen from the liverymen who are recruited from the third class or freemen of the company. In 1880 a Royal Commission inquired into the Livery Companies and their finances. The report (1884) contains much information. They are large supporters of charities and educational establishments—Tonbridge School, by the Skinners' Company; St. Paul's, by the Mercers'; Merchant Taylors', by that company, being the chief. See H. T. Riley, *Memorials of London*, 1868; W. C. Hazlitt, *The Livery Companies*, 1892; P. H. Ditchfield, *The City Companies*, 1904; *The Gilds and Companies of London*, 1908.

Company and Company Law. In the sense of commercial organisations, the term C. at the present day comprises two kinds of associations, differing not so much in essentials as in the manner of formation and degree of external control. These kinds are: (a) Statutory or public Cs. formed under a private or special Act of Parliament for the purpose of carrying on some undertaking of a public nature, e.g. railway, gasworks, and waterworks Cs. These Cs. are regulated by the Companies Clauses Acts, 1845–69, the provisions of which, based on those usually to be found in the earlier special Acts, constitute a code of practically universal application. (b) Trading Cs. incorporated by charter or under the Companies (Consolidation) Act, 1929. Of these the latter are by far the more numerous. The former (on which see **CHARTERED COMPANIES**) are now but rarely launched, and exist chiefly to exploit new regions abroad. Even when the Crown did grant more charters, however, such Cs. had many drawbacks, principal among which was that the members were not responsible for the corporate debts. Hence the introduction of the common-law C., or precursor of the modern joint-stock C. These earlier joint-stock Cs. differed from the modern in that they were unincorporated and the liability of the members was unlimited. In 1855 Parliament passed an Act legalising the principle of limited liability. This limitation of liability, coupled with the advantage of trading on a co-operative system so as to eliminate the waste involved in individual effort and small capital outlay, led to an ever-increasing number of Cs.

being formed, until now the returns of the registrar of joint-stock Cs. show a registration of something over 5000 new Cs. every year. The Cs. Act, 1929, which operated as from Nov. 1, 1929, repeals previous consolidating Cs. Acts, 1908 and 1928, in addition to several other statutes. The Act applies to limited Cs., Cs. limited by guarantee, or Cs. other than limited Cs. as if they had been formed and registered under the Act. Nothing in the Act except such provisions as relate expressly to Cs. registered or incorporated in N. Ireland or outside Great Britain, applies to Cs. registered or incorporated in N. Ireland. The chief provisions of the Act are: *Incorporation of C.* Any seven or more persons or, where the C. to be formed will be a private C., any two or more persons, may by subscribing their names to a memorandum of association, and otherwise complying with the Act in respect of registration, form an incorporated C. with or without liability. Such a C. may be (1) A C. having its members' liability limited by the memorandum to the amount, if any, unpaid on the shares respectively held by the members ('a C. limited by shares'). (2) A C. having its members' liability limited to such amount as the members respectively guarantee to contribute to the C.'s assets in case of a winding-up ('a C. limited by guarantee'). (3) A C. not having any limit to the liability of its members ('an unlimited C.'). *The Memorandum of Association must state:* (1) The name of the C. with 'Limited' as the last word in the case of Cs. limited by share or guarantee. (2) Situation of registered office. (3) Objects of the C. (4) Liability of members is limited in Cs. limited by shares or guarantee. (5) In Cs. limited by guarantee that each member undertakes to contribute to C.'s assets on a winding-up while he is a member, or within one year after ceasing to be a member for payment of debts contracted before he ceases to be a member. (6) In Cs. having a share capital, the amount of share capital with which the C. proposes to be registered and the division thereof into shares of a fixed amount; no subscriber to take less than one share; and each subscriber to write opposite his name the number of shares taken.

Share Capital and Debentures.—A prospectus issued by or on behalf of a C. or in relation to an intended C. shall be dated, and a copy, signed by every director or proposed director named therein (or by his agent authorised in writing), shall be registered with the Registrar of Cs. on or before the date of publication, and

prospectus shall be issued until it is so registered.

No allotment shall be made of shares offered to the public for subscription unless the amount stated in the prospectus as the minimum amount which in the opinion of the directors must be raised has been subscribed and the sum payable on application received by the C. The amount payable on application on each share shall not be less than 5 per cent. of the nominal value of the share. If the aforesaid conditions have not been complied with on the expiration of forty days after the first issue of the prospectus, all money received from applicants for shares must be repaid forthwith to the applicants without interest.

The Act of 1929 embodied the findings of the Greene Committee's report of 1926. The Committee were of opinion that C. legislation could be an elastic system giving scope to honest business but rendering the activities of dishonest promoters.

Steps in the Formation.—These comprise the preparation of the memorandum of association, the articles of association, the preliminary contracts (any), and registration. Any seven or more persons, by subscribing their names to a memorandum of association and contributing at least one share each, may on registering the memorandum with the registrar of companies form an incorporated company.

It is, of course, not obligatory on individuals associated for the purpose of trade to form a C.; but large partnerships, as distinct from firms, are forbidden in certain cases: (1) two or more persons associated for the purpose of carrying on the business of banking; and twenty or more for the purpose of carrying on any other business, must register themselves as a C. The memorandum of association provided for in the Act must contain: (1) The name of the C., with 'limited' as the last word in its name; (2) the place of the United Kingdom in which the registered office is to be situate; (3) the objects of the C.; (4) a statement that the liability of the members is limited; and (5) the amount of share capital with which the C. proposes to be registered, and the manner of division of the capital into shares. The powers of a C. depend entirely on the memorandum of association, and there can be no ratification by the shareholders of any act done by the directors which is *ultra vires*, i.e. not within the scope of the memorandum. A memorandum can generally only be changed by leave of the court. The capital clause states the amount of the nominal capital of

the C., together with the number and amount of the shares. The subscribers must pay for their shares, sign the articles of association (see below), and either appoint the first directors or act as directors themselves until such appointment. On compliance with these requisites, the memorandum of association and the articles of association, properly signed and attested, and each bearing a ten-shilling deed stamp and five-shilling registration stamp, may be taken to the registrar, together with a statutory declaration by the solicitor of the C., or by a person named in the articles as a director or secretary, that the various requirements of the Act as to registration have been complied with. On payment of the *ad valorem* stamp duty on the amount of the capital, the registrar issues a certificate of incorporation certifying that the C. is incorporated under the Act. The articles of association are a much longer document than the memorandum, and are in effect a repetition in detail of the memorandum. They form a binding contract between all the members or shareholders and the C. The matters provided for in the articles include, among others, the mode of division of the profits and losses, calls, transfer and transmission of shares, conversion of shares into stock, increase or reduction of capital, borrowing powers, qualification of directors, meetings, powers of directors, auditing of the accounts, and the winding up of the C. Where no articles are registered the Act provides that the model articles given in Table A in the first schedule to the Act shall apply. When registered the articles bind the C. and the members thereof to the same extent as if they had been signed and sealed by each member, and contained covenants (*q.v.*) on the part of each member to observe them. The articles may amplify the memorandum but may not contain anything contrary to its tenor. The articles may be altered without recourse to the court. Alterations in both the memorandum and the articles of association are effected by special resolution. The court will not confirm alterations in the memorandum designed to enable the C. to acquire entirely new powers except on special terms; and as a rule the court only confirms such alterations as are intended to enable the C. to carry on its business more economically, as *e.g.* by reducing its capital, or to enlarge the area of its operations. Changes in the articles must not go outside the powers given by the memorandum. The articles may not deprive a shareholder of his right to

present a petition for winding up the company.

The Promoter.—The promoter is the person who is responsible for the C.'s existence as such. The typical promoter starts the scheme of forming the C., negotiates with the vendors (if any), gets together the board of directors, retains brokers, bankers, and solicitors for the C., has the memorandum and articles of association prepared, provides the registration fees, drafts the prospectus, pays for the expense of issuing it, etc.; in a word, undertakes to form a C. with reference to a given project and to set it going and to take the necessary steps to accomplish that purpose. A promoter stands in a fiduciary relation to shareholders and subscribers, and therefore may not make any secret profit out of the flotation, whether he is selling his own property to a syndicate or himself forming a syndicate with other promoters to purchase property for the purpose of reselling it at an enhanced figure to some other syndicate. Intending shareholders should be careful to ascertain what the vendors paid for the property or concern the exploitation of which is to be the substratum of the C., for unless the true purchase price is disclosed and the profit on resale accruing to the vendors, the shareholders will never know what liabilities the C. is under in regard to its preliminary contracts. For this reason he should beware of the 'waiver' clause in the prospectus which is mainly designed to put him off inquiry.

Prospectus.—This is generally a circular sent round by the promoters or directors after the registration of the C., and its primary object is to induce the public to take up the shares in the C. It is a document in regard to which the legislature and the law courts have ever enjoined the necessity of the fullest and strictest disclosure. Any untrue statements, whether fraudulent or innocent, will, if material, entitle the person taking shares on the faith of such representation to rescind his contract. In the case of fraud, damages may be obtained as well. A director or any person responsible for the issue of a prospectus is liable to pay damages to any person who is damaged by a false statement in the prospectus, unless he had reasonable grounds for believing in the truth of the statement, or made it upon the authority of an expert whom he had reasonable grounds for believing to be competent, or where the statement was an accurate copy of an official document. The prospectus must disclose: the contents of the memorandum; the number of founders' or deferred

shares (if any); the number of shares fixed by the articles as the qualification of a director; the remuneration of the directors; the names, descriptions, and addresses of directors or proposed directors; the minimum subscription on which the directors may proceed to allotment; the number of shares or debentures issued as fully or partly paid up otherwise than in cash; the names and addresses of the vendors or any property acquired by the C., or proposed to be acquired; the amount paid or payable in cash, shares or debentures to the vendors, whether as purchase money or otherwise, specifying the amount (if any) payable for goodwill; the amount of the underwriting commission (*i.e.* consideration for which some person undertakes to take the whole or a portion of the offered shares as may not be subscribed for by the public); the amount of the preliminary expenses; the amount paid to any promoter and the consideration for such payment; the dates of and parties to every material contract where not made in the ordinary course of the C.'s business; the names and addresses of the auditors (if any) of the C.; full particulars of the interest of each director in the promotion of or in the property proposed to be acquired by the C., and any sums paid to him, or agreed to be paid to him, to induce him to become a director; and the rights of voting attached to the several classes of shares (where divided into different classes).

Directors and Members.—A C. is not bound to have directors. The individual members might undertake to carry on the business themselves. As a rule the C. appoints directors to act for it in all important matters. Their position is that of trustees and agents. Directors who make contracts for the C. are not personally liable on the contracts where they do not contract in their own names. The first directors are usually named in the articles, but if not named, the first directors are generally appointed by the subscribers to the memorandum. Being in a fiduciary position, the law requires that directors should always act in good faith and in the best interests of the C. In the absence of express agreement, directors are not entitled to remuneration. A director is not liable for unlawful acts if he can prove that he acted in ignorance of the facts which made his act unlawful. Even if negligent, a court of equity can relieve him from liability if he acted honestly and reasonably. The members of a C. include the persons who sign the memorandum and those who have

agreed to become members by applying for shares or taking a transfer of shares from some other member. Any one can become a member, but an infant may repudiate his shares on attaining full age. Members must pay for their shares unless the allotment is made in return for services. Every C. must keep a register of its members, containing their names and addresses, the amount and numbers of their shares, the date of acquiring them, and the amount paid up on them. A list of the members, called the 'Annual Summary,' must be made out every year and sent to the registrar.

Shares.—A share denotes a right to receive a certain proportion of the profits of the C. and of the capital of the C. when it is wound up. A member of a C. obtains his shares by allotment, his title being completed by the issue of a share certificate. Shares may be transferred in the manner provided by the articles of association. Transfer is usually effected by deed, completed by registration of the transfer. Every shareholder is entitled to transfer his shares, subject to any restrictions that may be imposed by the articles; thus a shareholder may assign his shares to a man of straw to avoid liability on the winding up, if not prohibited by the articles. If the C. be wound up within one year of such a transfer, the transferor remains liable to the amount unpaid on his shares. Transfers may be made subject to the approval of the directors by the articles, but, generally speaking, the rules of the Stock Exchange will not allow any such restriction on fully paid shares. Where a shareholder fails to pay calls due on his shares, the shares may be forfeited in accordance with the articles. On the liquidation of the C. the amount outstanding on the shares must be called up.

Capital is generally divided into preference shares, ordinary shares, and deferred shares. Preference shares are usually entitled to receive a fixed dividend before any dividend is paid on the ordinary shares. Preference shares are said to be cumulative where any deficiency in the dividends accruing in a bad year rests to be made good out of the profits of subsequent years. Deferred or founders' shares, which are usually taken by the promoters, are generally entitled to a proportion of the profits if the dividend on the ordinary shares amounts to more than a fixed amount. Deferred shares are sometimes allotted as fully paid up, and sometimes issued by way of bonus to ordinary shareholders. Preference shares on the winding up of the C.

are paid off in full before the ordinary shares are paid anything, where they are made 'preferential as to capital.' Where the C. by special resolution elects that any portion of its capital not yet called up shall be incapable of being called up except to wind up the C., such uncalled capital is *reserve capital*, and it cannot be dealt with or charged by the directors. Capital may be increased or altered if authorised by the articles; if not, the C. may give itself power to do so by special resolution. Alteration of capital occurs where existing shares are either consolidated, as, *e.g.*, by changing every ten £5 shares into one £50 share, or subdivided, as, *e.g.*, by changing every £5 share into five shares of £1 each. Capital may also be altered by converting fully paid shares into stock. The essential distinction between shares and stock is that the former are issued in round sums, whereas the latter may be divided into any aliquot amounts; neither are the divisions of stock numbered as are shares. The conversion of shares into stock means that the shares have been completely paid up, and that the time has come when the shares may be transferred in fragments. On the Stock Exchange stock is quoted at a certain price a £100 of stock, while shares are quoted at the price per share. Where the C. has sustained losses which it ought to provide for before paying dividends out of its profits, it may pass a resolution to reduce its capital. The leave of a Chancery judge must be obtained on motion day where the rights of creditors are affected by the proposed reduction or writing off of capital.

Debentures.—A debenture is a document given to evidence the fact that money has been lent to the C.; it creates a charge on the C.'s assets, and provides for the repayment of the loan on the happening of certain events, as, *e.g.*, the making of an order for winding up the C., or an order for the appointment of a receiver. Debentures may be payable to bearer, or only to the registered holder. Bearer debentures are transferable by delivery, and no notice of the transfer need be given to the C.

Meetings and Resolutions.—The Act of 1929 provides that a C. must hold a general meeting within not less than one month and not more than three months from the date of commencing business. The purpose of this, the statutory meeting, is that all the shareholders shall have an opportunity of forming an opinion of the exact position of the C. within a short time of its commencement. The directors are required to send out to the shareholders seven days before

the statutory meeting a report stating the number of shares allotted and the general state of the C. The articles usually provide for the convening of an *annual general meeting*. Special business is transacted at an *extraordinary meeting*; the directors are bound to hold an extraordinary meeting if required to do so by the holders of one-tenth of the issued capital. Voting at meetings may be by show of hands, or on a poll, according to the articles (*see* under **CASTING VOTE**). Unless the articles make the voting dependent on the number of shares held, each shareholder has one vote. Resolutions are either ordinary, special, or extraordinary. A special resolution is one that is first passed by a three-quarters majority, and, at a second meeting, confirmed by a simple majority. An extraordinary resolution is an unconfirmed special resolution. An extraordinary resolution appears to be effective only in the case of the shareholders resolving that the C. cannot go on with its business and that it is advisable to wind it up.

Winding up is of three kinds: (a) by the court; (b) voluntary; (c) subject to supervision by the court. A C. may be wound up by the court if a special resolution has been passed to that effect, or if the C. does not commence business within a year of its incorporation, or if the C. is unable to pay its debts, or if the court is of opinion that it is just and equitable that the C. should be wound up. Winding up by the court is begun by petition, and any contributory or creditor may present a petition, but the court may refuse to order a winding up if the majority of the creditors oppose it. The most usual manner of winding up a C. is voluntarily. A voluntary winding up takes place when the period fixed for the duration of the C. by the articles has expired, or where the C. passes a special resolution to wind up the C. voluntarily, or resolves that as it cannot meet its liabilities it is advisable to go into liquidation. When a C. has passed a resolution to wind up voluntarily, the court may make an order that the voluntary winding up shall continue *subject to such supervision of the court* and upon such terms and conditions as the court thinks just. Whichever mode of winding up is adopted, a liquidator is appointed to call up the amount unpaid on the shares and generally to administer the property of the C. by applying the assets first in the payment of debts, and then, if there be any residue, among the shareholders according to their priority. On the winding up order being made by the

court the official receiver becomes provisional liquidator unless the creditors have chosen some other person to act as liquidator. The liquidator may bring and defend actions in the name of the C., and carry on the business of the C. so far as may be necessary for its beneficial winding up. Sometimes winding up is effected with the object of *reconstructing*, i.e. selling the undertaking of the C. to a new C. in return for shares in the new C. Cs. generally reconstruct when more capital is required, and when the only way to get it is to put pressure on existing shareholders, usually by inviting them to take up partly paid shares in the new or reconstructed company in substitution for their fully paid shares in the old C. A shareholder who has not voted for the special resolution to wind up the C. may express his dissent to the liquidator, and require him to purchase his share interest in the old C., but he must dissent within a week of the resolution. On Dec. 31, 1927, there were registered in Great Britain and N. Ireland 103,345 joint-stock Cs., with a total paid up capital of £4,907,667,156.

Private Companies.—A private C. is defined by the Companies Act as one which limits the number of its members to fifty (exclusive of employees), restricts the right to transfer shares, and prohibits any invitation to the public to subscribe for shares or debentures. Usually all the shares are held by members of a single family. A private C. may consist of no more than two members. Such a form of company is usually resorted to when a trader desires to have the advantage of limited liability without the disadvantage of sharing his profit with other persons. A number of partnerships have been converted into private Cs. since the Act was passed, one great advantage of incorporation being that the death of a partner does not bring an end to the association, and a partner's interest may be continued in his son by giving the latter debentures in the C. P. F. Simonson, *The Law relating to the Reduction of the Share Capital of Joint Stock Companies*, 1924; A. F. Topham, *Principles of Company Law*, 1929; F. Gore-Brown, *Handbook of Joint Stock Companies*, 1930; Buckley (Lord Wrenbury), *Companies Acts*, 1930; P. F. Simonson, *Reconstruction and Amalgamation of Joint Stock Companies*, 1931.

United States of America.—Company Law in the U.S.A. has followed a more or less similar development to Company Law in England (*q.v.*). The corresponding title to the English Joint Stock Company is

Business Corporation, and the American equivalent of the English Statutory Company is Public Service Corporation. The fundamental differences which characterise the two systems may be traced to the different constitutions of the two countries. As a rule the liability of a stockholder is limited to the amount of his subscription. It was necessary at one time that all stock issued should have a par value and that all subscribers should be liable until they had paid an amount equal to this value. Stock may now, however, be issued without par value. C. law in the U.S.A. is by no means uniform, as each state possesses its own legal principles and case-law relating to companies; this being the natural result of the constitutional principle that the right to create a corporation is a sovereign state-right. But the law respecting business Cs. usually provides that those forming the C. shall sign and acknowledge articles of association, which articles must show the amount of capital stock, the proposed duration of corporate existence, and other more formal particulars. After the articles have been filed in the office of the Secretary of State, a certificate of incorporation is granted to the members of the corporation. Stockholders, just like English shareholders, remain liable until their subscriptions are fully paid, and directors must, as a rule, qualify as stockholders. The state can forfeit a certificate for misuse of franchises. Cs. are liable for every wrong they commit, and unlike English Cs. cannot plead the doctrine of *ultra vires* (q.v.). W. W. Cook, *Cs. and Corporations*; *American Corporations Legal Manuals*; Seymour D. Thompson, *Corporations*, 1922.

Company, a subdivision of a battalion. The British infantry battalion is divided into companies, each of which is commanded by a captain and two lieutenants. The Army Service Corps is divided in a similar manner into companies. The C. is itself again divided into two divisions, each of which is commanded by a lieutenant. In itself the C. is practically self-controlled, keeping its own books and its own arm chest. The Engineers are similarly divided into companies, but these companies are commanded by major, a captain, and four lieutenants. A 'battery' of artillery and 'troop' of cavalry are the equivalents of a 'C.' of infantry. C. of ship includes the whole of the persons employed on board and paid specific duties, and therefore excludes troops and passengers. Company, John, a popular nickname for the old East India C.

Comparative Anatomy, that portion of the science of anatomy which concerns itself with the comparison of the structures of various classes of animals. It is of great importance in the science of biology. See ANATOMY, BIOLOGY, and the articles on the various forms of life, and those on the different parts of the body.

Comparative Ethics comprises the study of the moral standards by which man has lived from the earliest times to the present day. This study does not aim at evaluation, but although conduct does not become ethical until it is guided by a consciously-held principle of what is right and what is wrong, C. E. takes us back to primitive times. The life of primitive man, as soon as he came to live in family and tribal groups, was hedged about by rules and taboos which were ethical in so far as they were directed towards securing the highest good for the individual or the tribe to which he belonged. Primitive morality, however, was governed by fear and the desire to placate the gods. Even among the ancient Egyptians ethics were a form of piety towards the gods, but the spirit pervading Gk. ethics was essentially different. In the words of Apuleius: 'The Egyptian deities were chiefly honoured by lamentations, and the Gk. divinities by dances.' The Egyptian 'Book of the Dead,' however, inculcates a high standard of conduct, of a restrained and prudent kind. The influence of Oriental religions, with the mysticism found in Egyptian and Semitic religions tended to produce a system of ethics which superseded the purely Gk. spirit. The Brahmanic Code of India and the Zoroastrian Code of Persia both taught a moral law which was part of the divine will. Although the former was ascetic and pessimistic, the latter was active and optimistic, preaching a dualism of good and evil and a conflict between them in which man must play an active part. Ethical teaching divorced from religion also had its roots in the East, in the teaching of Gautama-Buddha and of Confucius. Gautama preached a resignation to evil, but Confucius laid down commonsense rules of conduct and courtesy which have been the mainstay of the Chinese polity ever since. Lao-Tze, however, a contemporary of Confucius, had considerable influence in teaching that everything had its essential character which it was useless to try to alter. From this came a polytheism similar to that deduced from Plato's Theory of Ideas. The Neoplatonists became mystical and polytheistic, but Plotinus, their

founder, remained monotheistic, and he had considerable influence on Christian ethics, as also did the teaching of the Stoics. The ethics of Porphyry, the disciple of Plotinus, were very similar to those of his Christian contemporaries, and the antagonism between them is therefore surprising. The Fathers of the Church did, indeed, borrow largely from earlier philosophies and metaphysics, but they were interested in dogma rather than ethics, and the problem of conduct did not claim precedence over science and politics until the eighteenth century. The Eng. philosophers, Locke, Berkeley, and Hume, advocated a morality founded on practical experience. Later in the century came the utilitarian hedonism of Bentham, from which were born the humanitarian ethics of the nineteenth century. In the meantime, however, Kant had established morality as law, man's law unto himself.

See Lecky, *History of European Morals*; Westermarck, *Origin and Growth of the Moral Idea*; Hobhouse, *Morals in Evolution*.

Comparetti, Domenico Pietro (1835-1927), an Italian scholar, b. in Rome, where he later studied at the university, and became one of the chief classical scholars of Italy, being appointed professor of Greek at Pisa in 1859. Of his work in classical literature the best known are an edition of the *Eucenippus* of Hyperides, monographs on Pindar and Sappho, and translations of some fragments of Hyperides. His researches concern the *Book of Sindbad* and *Virgil in the Middle Ages*. He also edited a collection of Italian national songs. Died at Florence.

Compartment, a term used in heraldry. Each of the divisions on a shield is called a C. The intention of quartering is to show the descent of one family from heiresses or co-heiresses of other houses.

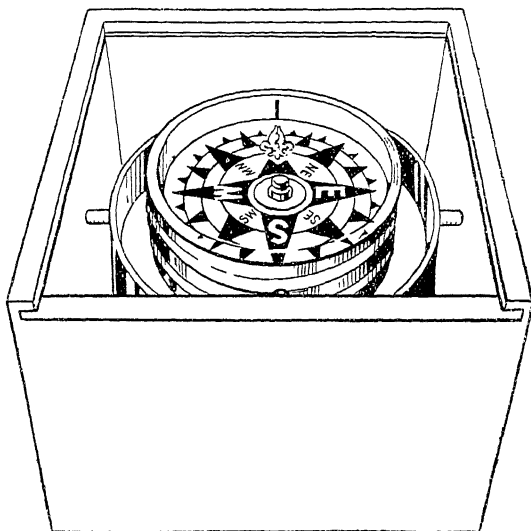
Compass, or Mariner's Compass, an instrument for determining the magnetic meridian and for showing one's position with regard to it. It consists of a magnetised needle turning on a pivot, and is used chiefly for directing the courses of ships at sea. The ordinary C. is composed of three parts, the box or bowl, the card, and the needle. The needle consists of a fine magnetised strip of steel, or of several magnetised strips joined together. Fastened to the needle, and moving round with it is a circular card having its circumference divided into 360 degrees. In addition to this it is marked with the thirty-two 'points of the C.' The four cardinal points are N., E., S., and W. and the

spaces between these are divided as N.E., S.E., S.W., N.W. The spaces between these eight points are again equally divided as N.N.E., E.N.E., E.S.E., S.S.E., etc. The last subdivision of the sixteen spaces gives us N. by E., N.E. by N., N.E. by E., E. by N., etc. The reading off of the thirty-two points in order, going round either way, is known as 'boxing the C.' The needle swings on a pivot which rises perpendicularly from the centre of a bowl, which has a glass covering to protect the needle. This bowl is generally of copper, as this metal is a particularly good conductor of electricity. The bowl is often filled with spirit, but the friction of this injures the susceptibility of the needle. The C. is generally situated in the binnacle, but other varieties of C. are known as standard, hanging, and steering Cs., according to their position on the ship. Until the end of the eighteenth century, British naval Cs. were very carelessly constructed, but since that time much progress has been made. The C. at present in general use is that patented by Sir William Thomson, elevated to the peerage as Lord Kelvin, in 1876. It is made up thus: In the centre is an aluminium boss, resting on an aluminium cup with sapphire centre poised on an iridium point. This boss is connected with an aluminium outer ring by silk threads. From this outer ring, lower than it, and near the centre point, are suspended eight thin magnetised strips of steel, four on each side of the centre. These eight small magnets also have their corresponding ends fastened together by silk threads. To the outer rim is attached a circular paper, with the points marked on it. Two important forces combine to form the error of a ship's C. One of these is the attraction of the ship itself. The magnetic influences of the hull, machinery, and metal work in general all affect the needle and divert it from its proper position. The error thus caused is known as the *deviation* of the C., and is met in various ways. First, the C. is situated or placed some distance above the upper deck so as to be less susceptible to these influences. Secondly, the deviation is diminished by placed magnets and bars of soft iron in such a position around the C. that the attraction of the rest of the ship's metal is neutralised. Thirdly, deviation charts are made, showing carefully the deviation of the particular C. when pointing in various directions. With steering Cs., the errors are often considerable, so much so that a C. has been known to point steadily to one part of a ship, in whatever direction she headed. A second

error is known as the *variation* of the needle. When free from deviation, the needle points to the magnetic pole of the earth and not to the geographic pole. The two are differently situated and hence occurs the variation of the needle.

This variation varies considerably at different parts of the earth's surface, and at certain points becomes zero. The variation changes from year to year, gradually rising to a maximum and then declining again. Irregular sources of variation are found in magnetic storms and similar electric disturbances. The *dip* of the C., in-

the third century A.D. However, the Chinese were never inclined to take a high place as navigators, and their knowledge never led to the perfecting of this aid to navigation. It was once reputed that the principle of the C. was introduced into Europe by Marco Polo on his return from travels in Cathay, but it was well shown by Mr. Chappell (*Nature*, 346, June 15, 1876) that early in the twelfth century the knowledge had been arrived at by independent discovery. Some ascribe the discovery of its variation to the same century, but others



[From Catalogue of Philip Harris, Birmingham]

MARINER'S COMPASS

ced vertically by the magnetic force of the earth, also varies. An *amplitude circle* is used to take bearings, to discover the angle between the true N. and the true N., the 'total or' made up of variation and deviation. This circle has reflecting mirrors and sighting wires, and fits over the top of the C. bowl. Thus, when the position of the sun, when it is 8° to 15° high, the amplitude, or bearing, is made out. The early history of the C. is somewhat obscure. It was known to the Chinese at a very early date, and their own historians ascribe its discovery to the year 4 B.C. Certainly it was in common use in the Far East by the end of

the third century A.D. However, the Chinese were never inclined to take a high place as navigators, and their knowledge never led to the perfecting of this aid to navigation. It was once reputed that the principle of the C. was introduced into Europe by Marco Polo on his return from travels in Cathay, but it was well shown by Mr. Chappell (*Nature*, 346, June 15, 1876) that early in the twelfth century the knowledge had been arrived at by independent discovery. Some ascribe the discovery of its variation to the same century, but others

ascribe it to Columbus. The terror that was caused by the variation of the magnetic needle on this explorer's voyage to America is well known, and certainly led the way to further knowledge on the subject.

Compass Berg, in the Schnee Berge range, lies E. of Cape Colony, and 30 m. N. of the town of Graff-Reinet. It rises 8500 ft. above the sea.

Compasses, instruments for describing arcs and circles, or for measuring distances. They generally consist of two legs joined together at one end by a hinged-joint, and having one leg furnished with a pen or pencil. C. are divided into *common*, *spring*, *beam*, and *proportional* C., according

to their kind. *Triangular C.* have three legs, so that the three points of a triangle may be transferred at once. *Hair and bow C.* are additional varieties.

Compensating Beam. A C. B. may often be seen fitted between the springs of the driving-wheels of a locomotive, in which case it is pivoted at its centre and supports the hangers of the two springs at its extremities. Any damage that might arise from a greater shock or jerk on one spring due to faults in the track, etc., is in this way minimised, for the motion of the C. B. effects an equalisation of the shock by transmitting it to the other spring. C. Bs. appropriately arranged are used on various machines for the same reason.

Compensation, a word used in the Lands Clauses Act, 1845, with a technical signification, denoting payment for the compulsory taking of land required for the execution of works of public utility, and for the consequent injury done to property not taken. Land can only be acquired compulsorily through consent of parliament expressed in a special Act. The persons obtaining such special Act are called 'promoters,' a term which will also cover local authorities acquiring land for municipal purposes. After the special Act is passed and the capital acquired for the contemplated undertaking, the promoters must serve on the owners of the land they desire to purchase a 'notice to treat.' No particular form is essential, but the notice must specify the land intended to be taken and the purpose for which it is wanted, and it must formally call upon the owner to negotiate for its sale. The owner then submits a 'claim' differentiating the value of his estate or interest and the amount he claims for damage to trade, and by way of C. for removal, fixtures, or severance. The promoters than make a formal offer, and, if the owner rejects it, the claim for C. if not exceeding £50, is settled by two magistrates; if over that amount, by arbitration or by a sheriff's jury. In assessing the value of the land, it is usual to allow an additional 10 per cent. upon the ascertained value. The fact (if so) of the land being of special utility to the owner is an element to be considered in the assessment. C. must also cover any damage done by reason of severing or otherwise injuriously affecting other lands of the owner. Costs of proceedings to obtain C. usually depend on the amount formally offered by the promoters, i.e. if the owner obtains less at the hearing, he pays the costs. See *Cripps' Compensation*, 1922.

Compensation, Workmen's, see WORKMEN'S COMPENSATION.

Competition, in economics, has been defined as the 'free action of individual self-interest,' and its result as that 'there can be only one price at one time for the same quantity of the same quality of the same article in the same market.' From a different point of view competition is that which makes an equilibrium between the forces of supply and demand. Its effects may be regarded from the standpoint of the consumer, i.e. the price of the goods sold; of the wage-earner, in the reward for his labour; and of the employer, in his profits—the reward of his capital and his skill and labour. Economic writers distinguish between 'commercial C.' that which brings an equilibrium between prices and expenses of production, and 'industrial C.' that which brings an equilibrium between expenses and the 'real' cost, the latter being the sum of 'efforts and abstinencies,' i.e. of the workman and of the capitalist, the cost of labour effort and of saving effort, while cost in the loose senses means the total of the wages paid out in order to produce, which in any single economic area depends on the 'industrial' C. Economists have stated general laws in regard to C., such as, the price of a freely produced commodity will be fixed by the rate of profits and wages which C. can command; C. in any market adjusts the price of a commodity, so that the quantity offered at that price equals the quantity demanded, for if prices rose above the point, the demand would fall and C. of other sellers would lower the price; if prices fell, the increased demand would shorten supply and put them up again. According to the old *laissez-faire* economical school, C. freely allowed play would result in the producer getting a fair profit, labour its fair wage, the consumer a fair price. What have been and are the chief forces which work against this free play, which depends mainly on the theory that labour and capital are both fluid or mobile? Custom is one restrictive force; it may fix prices, as it does in the East; it may keep labour fixed in one form of activity; it has fixed capital, as in England, where at one time the capital of a whole class was confined to land. The restricting influence of custom is diminishing even in the East. Combination is the most important force; monopolies on the one hand, trades unions and co-operation on the other, are vital factors in fixing prices and costs of production on the one hand and wages on the other. State regu-

tion increases, whether it be in the form of factory legislation, wage-boards to prevent sweating, or in more drastic forms such as tend to be ideals of Socialism, which would eliminate C. as it is known to-day. Economists agree that free C. works only in an 'economic area,' and international C. is therefore subject to the tariffs which practically all nations except Great Britain put up to restrict the trade C. of other nations. These tariffs, again, do operate in favour of the formation of trusts and monopolies, though the tendency towards combinations of producers and transporters are marked, if not so powerful, in Free Trade countries as Great Britain in Protectionist countries.

Compiègne, a tn. of France in the dept. of Oise, and at the head of an arron., situated on the l. b. of the R. Aisne, about 45 m. N. E. of Paris. It is famous for its royal palace, founded in Merovingian times, and rebuilt in the reign of Louis XV. There are apartments which were furnished by Napoleon I., containing a collection of modern paintings. There are numerous other fine buildings, including the church of St. Jacques, of the thirteenth century, and St. Etienne, of the fifteenth century. Of modern buildings, the college, town hall, and public library are worthy of notice. The manufs. are hosiery, silk, linen, rope, and there is some trade in corn and timber. C. has been the seat of several councils. In the neighbourhood is the celebrated Forest of C., covering over 30,000 acres. Joan of Arc was taken prisoner by the Eng. at a sortie from C. on May 3, 1430. Situated on the direct route to Paris from Belgium, it is impossible for C. to avoid being overrun during the Great War by the Ger. in their advance on the capital in 1914. When the Allies counter-attacked at the first battle of the Marne, the Gers. tried to hold the line of the R. Aisne, with their right flank, under General von Kluck, turning on C. Marshal Joffre, however, having organised his army for a further counter-advance, drove the Gers. back far beyond C. within a fortnight of that battle. C. was again the strategically-important objective of the Ger. armies in June, 1918, when Marshal Ludendorff ordered General von Hutier's army, now posted between Montdidier and Compiègne, to attack with no fewer than fifteen divisions on that part of the front. His plan was to link the Marne and Amiens salients, and earlier that year in the British campaign, and thereby eliminate the at-bulge in his own line and so

capture C., and again endanger Paris. The essential element of surprise was lacking, and contributory factors to the complete failure of Von Hutier's attack were the obstinate resistance of the Fr. at Rheims and the entire success of the Americans at Château Thierry; and in four days his effort on the Oise had ceased (June 13, 1918). It was in the forest of C. that the Armistice between the Gers. and the Allies was concluded on Nov. 11, 1918. Pop. 1736.

Complement, a term with many applications. In geometry, the C. of an angle is that angle which added to it will make it 90°. So the C. of 30° is 60°. Again, the C. of an arc is that required to make it a quadrant. In astronomy, the C. of a star is its zenith distance. In music, any two intervals which make up an octave are complementary. In arithmetic, the C. of a number is that required to raise it to the next power of 10. Thus 7 is the C. of 3, 89 of 11, 254 of 9746. In chromatics, the C. of any colour is that one which added to it will give white, e.g. red is the C. of greenish-blue, and yellow of indigo-blue (see COLOUR).

Complex Number. The theory of C. Ns. is a branch of mathematics. A C. N. consists of two parts, one real and one called 'imaginary,' e.g. $10 + \sqrt{-1}$ is a C. N., where 10 is the real part and $\sqrt{-1}$ the imaginary part. $\sqrt{-1}$ is defined by the equation $\sqrt{-1} \times \sqrt{-1} = -1$. It is imaginary in the sense that the square of a real number whether positive or negative is a positive quantity. The symbol $\sqrt{-1}$ is of great use in mathematical analysis. The factors of $x^2 + y^2$ are written $(x + \sqrt{-1}y)(x - \sqrt{-1}y)$, each factor being a C. N.

Compositæ, the largest natural order of plants, containing over 10,000 species which are world-wide in distribution, and were estimated by De Candolle at one-tenth of all the flowering plants. The inflorescence is practically always a capitulum, and the flowers are surrounded by one or more external rows of bracts forming an involucre; the flowers collected in a single head may often be hermaphrodite, pistillate, and sterile. The calyx is often absent, but its usual form is a pappus of hairs, e.g. in the dandelion, which develops after fertilisation. The corolla is gamopetalous, and may be tubular, or labiate. There are five stamens inserted on the corolla, and they alternate with the petals. The fruit is a cypselia with an exalbuminous seed. Auto-pollination is the general rule among the plants, and distribution of the seeds is effected most often by

animals and the wind. The plants in the order are nearly all herbaceous, but in warm latitudes they sometimes assume an arborescent character. Water-plants, climbing-plants, and epiphytes are of rare occurrence, although the number of species is so vast. The root is usually a tap-root, often thickened, *e.g.* in the dandelion, sometimes tuberous, *e.g.* in the dahlia. The leaves are usually exstipulate, radical, or alternate, but in some cases, *e.g.* in the sunflower, they are opposite. In many species laticiferous vessels are found, and oil-ducts are very commonly present. Few of the plants are of economic importance, but many are cultivated for their beauty, *e.g.* dahlias, marigolds, coreopsis, asters, chrysanthemums. In some cases they are soporific, *e.g.* lettuce and succory; in others, diuretic, as various conyzas; some are tonic and stomachic, as wormwood and chamomile; the common and Jerusalem artichokes are the only esculents. The C. are classified in various ways, based on the form of the flowers and on the distribution of different florets in the capitulum. The *Tubulifloræ* are those in which the flowers of the disc are not ligulate, and there is no latex; the *Ligulifloræ* are those in which all the flowers of the capitulum are hermaphrodite and ligulate, and all the plants have laticiferous vessels; and a third sub-order of S. American plants is sometimes added, the *Labiatifloræ*, in which the disc-flowers are hermaphrodite and the corolla is regular or bilabiate, while the ray-flowers have usually a bilabiate corolla. The daisy represents the first group, the dandelion the second, and the genus *Mutisia* the third.

Composition, in mechanics, refers to either velocities (see VELOCITY) or forces (see FORCES, PARALLELOGRAM OF). The converse of C., as we shall see later, is *resolution*, and these two problems, *i.e.* of the C. and resolution of velocities and forces, form two of the fundamentals of the science of mechanics.

Dealing first with the C. and resolution of velocities, we treat the problem as a branch of dynamics (*q.v.*). Now a body cannot be in two places at the same time; therefore it cannot move in two different ways at the same time. But it is often convenient and even necessary to regard the motion of a body as being *compounded* of several velocities. These various velocities are termed the *component* velocities, and must be regarded as relative, while the actual velocity is said to be the *resultant* velocity, and the process of finding this resultant velocity is termed *compounding* the

velocities. Thus, supposing one steamer passes another going in the same or the opposite direction, then the resultant velocity is the algebraic sum of the velocities of the steamers, which are the component velocities. But take the case of a ball thrown up in a railway carriage in motion. In this case the ball moves upwards under its own velocity and at the same time is carried forward with the velocity of the train. In this case, and all cases where the directions of the velocities are different but are coplanar, the theorem known as the *parallelogram of velocities* is used. 'If two component velocities be represented in magnitude and direction by the two adjacent sides of a parallelogram drawn from a point, then their resultant velocity will be represented by the diagonal of the parallelogram drawn from that point.' Thus in the case of the ball in the carriage, according as the speed of the ball upwards is greater or less than that of the train horizontally, so the resultant velocity will be in a direction approaching the vertical or the horizontal. All cases are not even as easy as this, for take a steamer travelling along a river, with a man walking *across* the deck of the steamer, and a fly crawling up the man's hat (Briggs and Bryan): then the speed of the steamer is relative to that of the water, and the velocity of the man to that of the steamer, and that of the fly to the velocity of the man. Each of these is a component velocity of that of the fly, and affects its motion, but the actual or resultant motion is different from any of them. In this case it is possible to take two of the components, and, by finding their resultant, eliminate one; and so, by continuing this process, to arrive at last at one resultant. Other theorems, such as the triangle, polygon, and parallelepiped of velocities, aid in finding the resultant velocity in particular cases. This concerns the C. of velocities, but if we were given the resultant velocity, and asked to find the component velocities, we would have to use the process called the resolution of velocities. This is evidently the converse problem to the C. of velocities, and a moment's thought will show that just as it is possible to construct an infinite number of parallelograms around a diagonal, so there are an infinite number of possible component velocities to any given velocity. When, however, the resolved component velocities required are to be at right angles to each other, as they usually are, then the problem is capable of solution.

Now since forces can be represented

n magnitude and direction by straight lines, it is evident that all that has been stated applies to statics as well as to dynamics, and to forces as well as to velocities; so by merely altering the word velocity to force, the foregoing statements will explain the C. and resolution of forces. *See* DYNAMICS, STATICS.

Composition, in bankruptcy, the scheme of arrangement of his affairs proposed by a debtor after a receiving order has been made against him, embodying in writing the terms upon which he is desirous of satisfying or compromising the claims of his creditors. *See* BANKRUPT.

Composition, in printing, *see* PRINTING.

Compositor in printing is the man employed in setting up the type. His duties, however, may be various. He prepares copy for the press, laying out a plan for the size and arrangement of the type, and he may also have to set the type in the galleys or the proof-press. The work proper to the C. is imposition—that is, arranging the type to be locked up ready for printing in the press.

Compostella, Santiago de, *see* SANTIAGO DE COMPOSTELLA.

Compound, *see* CHEMISTRY.

Compound Dislocation, the displacement of one bone from another with which it forms a joint, complicated by the bone having been forced through the skin, so allowing an access of air to the wound. It is a very serious condition, since it may involve inflammation and blood-poisoning, and in healing may induce tetanus (*q.v.*). After the dislocation has been replaced antiseptic treatment and complete rest of the limb are necessary. *See* DISLOCATION.

Compound Fracture, one in which one of the bony fragments of the broken bone has pierced the skin, using a wound which communicates with the fracture. In contradistinction to this, a complicated fracture is accompanied by some other injury not communicating with the fracture, as a dislocation, a large flesh wound, a broken blood-vessel. C. F.s. are obviously more serious than simple fractures, but the dangers have been much lessened since the introduction of antiseptic surgery.

Compound Householder, a term frequently used by rating authorities to denote the occupier of a 'small tenement,' who is not separately rated for the relief of the poor, and whose rates may therefore be said to be included in his rent. This happens principally where rating authority compounds with the owner or landlords for the payment of the rates. See various Acts concerning the

registration of voters require that those claiming the occupation franchise be separately rated. But the Poor Rate Assessment and Collection Act, 1869, provides that in cases where the rateable value of a house does not exceed £20 in London, £13 in Liverpool, £10 in Birmingham or Manchester, and £8 elsewhere, the owner may agree with the rating authority to become liable for the rates himself whether his property be occupied or not, and that the rating authority may allow him a commission not exceeding 25 per cent. on the rateable value. The Act also provides that the rating authority may order the owner to be rated instead of the occupier, subject to an abatement or deduction of 15 per cent. In such cases the C. H. is deemed to be separate for the purposes of the occupation franchise. The object of the Act of 1869 was to obviate the great expense and loss of time consequent on the collection of the rate from the numerous small occupiers. But there can be no doubt that this advantage is largely outweighed by the detriment to the public interest involved in less in the diminution of civic responsibility in the C. H. than in the principle of bargaining on the part of the rating authority. (Ryde on Rating, 1930.)

Compounding Offences. Compounding felony means forbearing to prosecute a person who has committed a felony in consideration of some reward received, as, *e.g.*, agreeing not to prosecute a thief in consideration of receiving back the stolen goods. Compounding a felony is a misdemeanour punishable by fine and imprisonment. The publication of an advertisement in a newspaper or by any other means offering a reward for the return of stolen or lost property coupled with words indicating that no questions will be asked or inquiry made on the production of the goods, renders the advertiser, printer, and publisher each liable to a penalty of £50. Compounding misdemeanours without proper leave is also an offence. But where a particular misdemeanour more closely affects an individual than the public at large, the court will sometimes allow the accused, before any judgment is pronounced, to settle with the prosecutor, when a nominal sentence only will be inflicted. *See also* CONCEALMENT.

Compound Interest, *see* INTEREST.

Compound Quantities in algebra are figures consisting of more than one term; in arithmetic they are quantities expressed in terms of various denominations as cwts., qrs., lb.

Compressed-Air Baths are made of

iron plates riveted together, of such a strength that they can withstand pressure. Air is pumped into the chamber until the required pressure, indicated by barometers, is reached. These baths will hold two or more persons. Another manner in which compressed air is used is that in which a mask fitted with tubes and valves is fitted tightly over the mouth and nose. The patient can then inhale compressed air and breathe out into rarefied air. The use of these in treating disease comes under the term *aërotherapeutics* (*q.v.*). The use of compressed air tends to lower the frequency of the chest and heart movements while increasing the oxygen absorption and the blood tension; the action of rarefied air will, of course, be opposite.

Compressed-Air Motors consist in using air which has been raised to a pressure much above that of the atmosphere, in a similar manner to that in which steam is used. They should not be confused with *air engines* (*q.v.*), which work on a different principle. Steam engines are more in vogue than C.-A. M., and it is easy to see that theoretically as well as practically the former should be regarded as being the more efficient, for whereas steam is obtained under pressure directly by the action of heat on water, some intermediate power must be used to obtain the air under pressure. This renders the use of compressed air comparatively more costly than the use of steam. Although this is so, however, there are many conditions under which C.-A. M. are advantageous. When steam has to be carried any distance, there is always some loss of power, owing to the radiation of heat from the pipes into the air. Now compressed air can be transmitted without loss of power through this cause. Again, the exhaust air, after having done its work in the engine, adds to the purity of the surrounding air, whereas exhaust steam vitiates the atmosphere.

Because of these two advantages C.-A. M. have attained considerable use in mines and tunnelling. C.-A. M. are used for driving coal cutters (*see* COAL-MINING). Further, they are used for driving drills for boring holes in rocks and in tunnelling operations, while they are also used to manipulate hammers for riveting steel and iron plates together, and chisels in sculpturing, and small and very light sheep-shearers. All these machines require to be portable and easily handled and controlled, and C.-A. M. offer great facilities in these directions. They can be supplied with air through flexible tubes,

and consequently the power generators do not add weight to the motor, nor do they make the rigid portion of the machines large and therefore cumbersome. Further, the working parts are not at a high temperature, and therefore the danger attached to their use is less than in the case of steam. It can well be seen, too, that in the case of tunnelling and mining, the advantages mentioned above are very valuable. C.-A. M. have been used in many other ways. Compressed air can, of course, be stored in cylinders without loss of power. Stored in this manner at a pressure approaching 2000 lb. per square inch, in reservoirs under the vehicle, it has been used as the motive force for driving tramcars; it has, at much greater pressures even, also been used in motor cars. Again, pneumatic tubes for transmitting letters and small parcels of all kinds are worked partly by compressed air and partly by exhaustion. Further, in some of the American arsenals locomotives are driven by compressed air, and their advantage over steam engines in the neighbourhood of explosives is easily understood. In addition to these uses, there are the cases of lifts or elevators, which are sometimes worked by compressed air, and the automatic brakes on passenger trains offer further illustration of its use; while one of their most important uses is in supplying the locomotive power to torpedoes. There are several types of compressors for driving the motors, the type depending on the number of air cylinders and the manner of their setting in relation to the steam cylinders. An auxiliary for increasing the power is used sometimes, and consists in heating the air before it reaches the motor. This heating, of course, causes it to expand, and in proportion to the expansion so is the power increased, in some cases to as much as 30 per cent. With the growth of use of steel framework for the construction of large buildings, so much riveting has to be done that a light and easily used riveting machine is essential. The pneumatic hand-hammer (or riveter) supplies this need. The supply of compressed air is obtained from a small but very powerful unit driven by a petrol engine, the whole of which is mounted on a small truck which can be drawn anywhere, the power being conveyed by flexible armoured tubing, and easily led out of the way of other workers. Another use for C.-A. M. has been found by road engineers in the pneumatic road drill which is taking the place of the now obsolescent pick. This road drill can be used by one man, and can do work

more quickly and better than the pick. In mining machinery there are two main types of C.-A. M. which are used to drive pneumatic tools: (a) turbine-type and (b) cylinder-type motors. In the former the C.-A. M. consists of three parts, a stator and two rotors. The rotors, which revolve inside the stator, consist of two V-shape tooth gear-wheels meshing together; the inflowing air is forced on to both gears, and the teeth of the gears as they revolve form valves and stop the air from escaping to the other side of the gears. In the cylinder type of machine the motive force is obtained from the motive action of two more cylinders; the valves which are driven from the crankshaft admit the air, which drives down the piston and escapes from ports at the end of the piston's motion on one side of the cylinder casing. Pneumatic tools possess many advantages over electric tools, the chief being their lightness, a C.-A. M., which can develop two or three horsepower, weighing no more than 30 to 35 lb.

Compression and Compressibility. When a body is acted on by a force in such a manner that it decreases in volume, it is said to be compressed, and the diminution in volume is its compression. The term compressibility is sometimes used to denote this property of yielding to pressure, but strictly used it represents the extent of this property as possessed by various substances. Different bodies will diminish by different amounts under the same pressure, and to represent this varying amount of yielding, compressibility is defined as being the ratio of the amount of compression per unit volume to the compressing force applied. So it is found by measuring the amount of compression of a given volume under a given pressure, and dividing this by the product of the original volume and the pressure. This gives the average compressibility per unit pressure, and the unit of pressure is usually taken as one atmosphere, or the weight of a square inch section column of mercury, 29.905 in. in height at a temperature of 0° C., weighed at sea-level. This is really equal to 14.7 lb. weight per square inch. The compressibility of gases is greater than that of liquids or solids. For gases the relation between pressure and volume being determined by Boyle's law, that the volume is inversely proportional to the pressure, it follows that the diminution in volume grows less as the pressure becomes greater, *i.e.* that the compressibility is inversely proportional to the pressure. Liquids are compressible,

e.g. water can be compressed, although the compressibility is less at high than at low temperatures and pressures. Measurements of the compressibility of liquids are made in an instrument called a piezometer. Thus it has been proved that the compressibility of water at 10° C., and a pressure of one ton per square inch is approximately $\frac{1}{20000}$. Sea water is roughly 10 per cent. less compressible than fresh water. Mercury has the smallest compressibility of any fluid, its compressibility being roughly one-sixteenth that of water. The compressibility of solids is very much smaller than that of gases or liquids, and except for theoretical purposes can be neglected. In measuring the compressibility of liquids, however, corrections must be made for the compressibility of the instrument employed. This being usually of glass, careful measurements have been made of its compressibility. This varies for the different kinds of glass, but is roughly about one-twentieth that of water.

Compressors. C. are used chiefly in connection with mining machinery. There are two main types of C., namely reciprocating and rotary C. The first is the more widely used, and there are many models, all varying in design and action. The low-pressure C., up to 200 lb. per sq. in., is a single-stage C., *i.e.* the air is compressed by the single action of one piston. In pressures of 200 lb. and over the C. are 2, 3, 4, or multi-stage C., *i.e.* the air is first compressed in one cylinder, and then suffers one or more subsequent compressions before it is finally stored. The valves of a C. are of two types: those placed in the cylinder casing and those fitted in the piston itself; the valves in both cases are automatic in action, being opened and closed by the suction and compression strokes of the piston. In recent years high-speed C. have been developed in connection with refrigerating plants. Most ammonia C. are of the single-acting enclosed type with the ammonia in the crank case; the valve ports are situated in the cylinder walls and lie between the limits of travel of the upper and lower parts of the piston.

Compromise Measures of 1850. These were a series of measures which had for their object the settlement of five questions in dispute between the pro-slavery and anti-slavery factions in the U.S.A. As a fact the 'Compromise of 1850' settled nothing, but 'was compounded by every element of the country's politics, and may be made to yield on analysis almost every ingredient of the historian's

narrative.' Territory had just been acquired by conquest and purchase from Mexico; Texas had just been admitted to the Union, and the perplexing question was the extension or restriction of slavery, for it threw obstacles in the way of a plan and government for the new territory, and made the determination of the Texan boundary a matter of grave sectional interest. Part of the country wanted the slave-trade abolished from the District of Columbia—the seat of the national Gov.—and slavery from the new territory; the other part urged with equal vehemence that the slavery question was a matter for decision by the framers of the State constitution (when it should come to be formed) of the new territory.

The result of this controversy was the series of measures framed and introduced by a committee of which Henry Clay was chairman, called the C. M. of 1850, which were signed by the President in September of that year. It was agreed (1) that Texas should be paid 10,000,000 dollars to relinquish her claim upon any portion of New Mexico; (2) that California should be admitted as a state under a constitution which prohibited slavery; (3) that New Mexico and Utah should be organised as territories without any regulation in respect of slavery, leaving it to the election of their own settlers whether there should be ownership in slaves or not; (4) that the slave-trade should be excluded from Columbia, but be interfered with nowhere else by the Federal law; and (5) that the whole judicial and administrative machinery of the Federal Gov. should be put at the disposal of the S. slave-owners for the recovery of fugitive slaves found within the free states. There seems little doubt that the C. M. helped to postpone secession and civil war for some years, during which time the N.W. grew more wealthy and was brought into closer touch with the N.E. states. See *Cambridge Modern History*, vol. vii., ch. xii., and Rhodes' *History of the U.S.A. from the Compromise of 1850*, vol. i.

Comptat Venaissin (from *Vercasque*, Lat. *Vindaxinum*) was a parallel division to Comptat d'Avignon; it was, however, larger, having an area of 450,000 acs., and now forms more than half of Vaucluse. The country is fertile, with magnificent scenery. Ventoix (1912 ft.) is the loftiest peak. The district is irrigated by a system of canals and by the Rhone, Durance, and Sorgue.

Compton, Arthur Holly, American physicist, b. at Wooster, Ohio, Sept.

10, 1892; son of Elias C., Grad. Coll. of Wooster, 1913. Instructor of physics in Univ. of Minnesota, 1916-17; and research physicist of the Westinghouse Lamp Co., Pittsburgh, 1917-18. Came to England, and pursued research at Cambridge, 1919-20; Prof. of Physics at Washington Univ., St. Louis, Mo., 1920-23; Prof. of Physics at Univ. of Chicago since 1923. His speciality is X-rays. Made first measurement of wave-length of hard gamma rays, discovered change in wave-length of X-rays when scattered, and, with other researchers, discovered total reflection and effected polarisation of X-rays.

Compton Effect (X-rays). Discovered in 1923 by A. H. Compton, this effect is the change of wave-length of a beam of X-rays when scattered by substances. This change of 'colour' cannot be accounted for by the Wave Theory of Light, which, however, accounts for many of the properties of X-rays (*q.v.*), known to be rays of extremely short wave-length. The corpuscular theory of light, while accounting for the C. E., is unable to explain other properties of X-rays and ordinary light. Up to the present time no reconciliation between the two theories has been effected.

Compton, Henry (1805-77), an Eng. comedian, b. at Huntingdon. In 1844 he appeared as Touchstone in *As You Like It*, and at once became famous. Other rôles were Blenkinsop in Tom Taylor's *Unequal Match*, Muggles in Byron's *Partners for Life* at the Globe Theatre, and Dr. Pangloss in *The Heir at Law*.

Comptonia Asplenifolia, the sweet fern, as a species of *Myrica*. It is a small bush, 3 or 4 ft. high, yielding a powerful aromatic fragrance when rubbed between the fingers. It is a native of the woods and mountains of the U.S.A., and possesses tonic and astringent properties.

Compton-Rickett, Sir Joseph (1849-1919), Liberal politician and Free-Church worker; eldest son of Joseph Rickett, of East Hoathly, Sussex. Entered the coal business founded by his father, of which he became chairman. From 1895 till 1906 he was M.P. for Scarborough. In the latter year he was elected for the Osgoldcross div. of Yorkshire; he retained the seat in 1910 and 1918—on the last occasion as a Coalition Liberal. Was made Privy Councillor in 1911, and in 1916 became Paymaster-General (without salary). In 1917 was appointed Charity Commissioner. On his retirement from business activity in 1902, he devoted much time to the affairs of his denomination, the

Congregationalists. Was for some years joint treasurer of the London Missionary Society. In 1907 was elected Chairman of the Congregational Union; in 1915, President of the Free Church Council—after serving as treasurer for some years. He wrote *Origins and Faith*; *The Christ That is to Be*; *a Latter-day Romance*; *The Quickening of Caliban: a Modern Story of Evolution*.

Comptroller, an official title for one who keeps or audits accounts, used mainly for Gov. offices, or in connection with the royal household, when it refers to a kind of steward or treasurer. Thus the C.-General is the head of the National Debt Office, the C. and Auditor-General the head of the Exchequer and Audit Department, etc. The word is more correctly spelt *controller*, as it comes from the Fr. *contre rolle*, from Med. Lat. *contra rotulus*, a counter-roll or copy of a document used to check the original: in this form it is applied to the Controller of the Navy and to the head of the Stationery Office in England, and in the U.S.A. to the Controller of the Treasury and the Controller of the Currency, the latter being one who administers the law relating to national banks.

Compurgator (Lat. *compurgare*, to purge completely), the name given to a witness of character who swore as to the character of the accused person in a trial. The word was used only in ecclesiastical law until the seventeenth century, when it was used by legal antiquaries in connection with the civil law. In Glasgow, up to the middle of the eighteenth century, when the office was abolished, an official whose duty it was to clear the streets of strollers during the time of church worship on Sunday was called a C.

Comrades of the Great War, a British organisation of ex-service men which arose out of the Great War. With the cessation of hostilities, public attention was naturally drawn to the consequential effects of the war, and among the numerous matters which called for prompt decision were pensions, the treatment of wounds, the supply of artificial limbs, resettlement in civil occupations, etc. The majority of ex-service men were incompetent to look to their own interests in such matters, and required the advice and assistance of those who were better qualified to act. It was from such circumstances that the 'Comrades of the Great War' arose, and it has done much good work in its own particular field. Later it was absorbed into the British Legion (*q.v.*), although some individual branches

still (1931) exist and retain their original identity and character.

Comrie, parish and vil., Perthshire, Scotland, on the R. Earn, 6½ m. W. of Crieff. It lies on the fault line which divides the Highlands from the Lowlands, and is subject to occasional earthquake shocks. Roofing slates are worked there. Pop. 1745.

Comstock, Anna Botsford, American naturalist and natural-history artist; b. 1854, at Otto, N.Y.; daughter of Marvin Botsford. Graduated at Chamberlain Institute, Randolph, N.Y., 1873; Cornell, 1878. Studied art at Cooper Union and under John P. Davis. Married, 1878, John Henry Comstock (*q.v.*). Exhibited at Chicago Exposition, 1893; Paris, 1900; medal for wood-engraving, Buffalo, 1901. Professor of Nature Study, Cornell, 1920-22; Emeritus since. Assoc. director, American Nature Assoc. Works include: *Ways of the Six-Footed*, 1903; *How to Know the Butterflies* (with her husband), 1904; *Confessions to a Heathen Idol*, 1906; *Handbook of Nature Study*, 1911 (16th edn., 1925); *Bird, Animal, Tree, and Plant Handbooks*, 1914; *Trees at Leisure*, 1916. Editor, *Nature Study Review*, 1917-23.

Comstock, Anthony (1844-1915), American neo-Puritan; b. at New Canaan, Conn.; son of Thos. A. Comstock, farmer. Educ. in Connecticut high schools. Served in Federal army in Civil War. Then, while in the dry-goods business, joined the Y.M.C.A. in New York, and took part in formation (1873) of the Soc. for the Suppression of Vice there, of which he became secretary. He was indefatigable in prosecuting for indecency in literature and art, making little or no distinction between the indecent and the nude. He wrote: *Frauds Exposed*, 1880; *Traps for the Young*, 1883; *Gambling Outrages*, 1887; *Morals versus Art*, 1887. Died at Summit, N.J.

Comstock, John Henry, American entomologist; b. 1849, at Janesville, Wis.; son of Ebenezer C. B.S., Cornell Univ., 1874; grad. student at Yale, 1874-75; at Univ. of Leipzig, 1888-89. Married Anna Botsford (*q.v.* under Comstock, A. B.). Instructor in Entomology, Cornell, 1875-77; Asst. Prof., 1877-78. U.S. entomologist, Washington, 1879-81. Prof. of Entomology and Invertebrate Zoology, Cornell, 1882-1914; Emeritus since. Member of many native and foreign entomological and zoological societies. Works: *Report on Cotton Insects*, 1879; *Notes on Entomology*, 1888; *Introduction to Entomology*, 1888; *Manual for the Study of Insects*, 1895; *Insect Life*,

1897; *How to Know the Butterflies* (with his wife), 1904; *The Spider Book*, 1912; *The Wings of Insects*, 1891.

Comstock Lode, a famous silver mine in Nevada, U.S.A., discovered in 1859; the richness of the mine may be said to have caused the rise of Nevada as one of the great gold- and silver-mining districts of the world. It was financed chiefly from San Francisco, and the 'bonanza' boom of the 'seventies led to a financial panic. The Comstock district is exceedingly rich both in gold and silver, but the fall in the price of the latter resulted in great depression. Virginia City, a prosperous mining centre, is built on the site of Comstock Lode.

Comte, Auguste (1798-1857), the founder of positivism. He was b. at Montpellier, where his father, a strong Royalist and Catholic, was the Receiver-General of Taxes. He received his early education at the public school of his own town, and later proceeded to the Ecole Polytechnique at Paris. About 1818 he came under the influence of Saint Simon, a relative of the famous Duc de Saint Simon, and although he himself at a later date declared that the influence of Saint Simon was for evil rather than for good, there is no doubt that during this period of his life he had a great admiration for his patron. Saint Simon's teeming imagination seems at any rate to have supplied C. with the bases for some, at least, of his later philosophical ideas. In 1824, after a quarrel, C. severed his connection with Saint Simon entirely. In the following year he married, but his marriage did not altogether turn out for good. He now found the greatest difficulty in making a living; he tried to get pupils but failed; he wrote a little for the papers, and finally proceeded to give a course of lectures which would embody the main principles of his philosophy. The lectures were at the beginning seriously interfered with, since he suffered at this time from an attack of insanity, from which, however, in the course of a few months he recovered. In 1828 the lectures were resumed, and two years later appeared the first volume of his great work, *Positive Philosophy*. Financially, matters had become brighter, and he was in possession of an income which amounted to £100 a year, although he had to work excessively hard for it. Until 1842 matters went more or less smoothly for C., but in that year the temperamental differences between himself and his wife culminated in their separation; although for a long time after this separation they

corresponded, and C., even in the midst of later financial difficulties, always made her an allowance. By this time he had lost half his income owing to a gratuitous attack which he had made on the directors of the Ecole Polytechnique, and for some time he lived on the subsidies of friends. In 1842 had appeared the sixth and final volume of the *Positive Philosophy*, and during the publication of this work he had become friendly with J. S. Mill, who now helped him very considerably in his financial difficulties. In 1845 C. fell under the influence of Madame de Vaux, an influence which seems to have been entirely for good, but which, unfortunately, lasted only for a year, being terminated by the death of the lady in 1846. C. was genuinely attached to her, and seems to have felt her death very deeply. In 1851 appeared the first volume of *The System of Positive Polity*, the last volume of which appeared in 1854. During the years 1849-51 C. gave lectures at the Palais Royal, where he strenuously advocated his general theories. He was attacked by cancer in the year 1857, and d. towards the close of that year.

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Comus (from Gk. *κῶμος*, revel, or a company of revellers), the god of festive mirth, unknown in classical mythology; he belongs to the later Gk. mythology, and is depicted by Philostratus, who wrote in the third century A.D., as a sleeping youth with wings, crowned with flowers and holding in either hand a hunting spear and an inverted torch. Milton in his *Comus* represents him as the offspring of Bacchus and Circe endowed with the magic power of turning human faces into those of beasts.

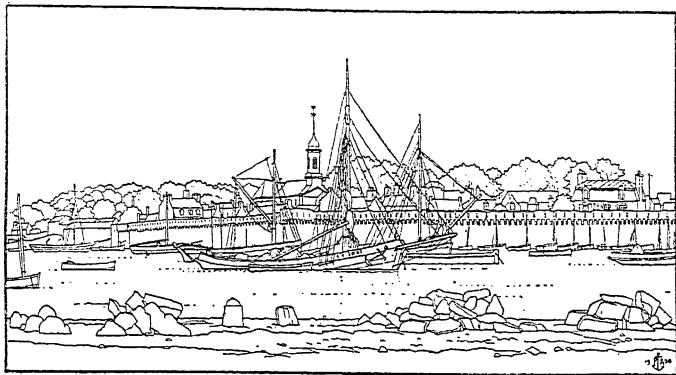
Comyn, Cumming, or Cumyn, a Fr. family who came to England with William the Conqueror. Robert was made Earl of Northumberland, his nephew William becoming chancellor of Scotland. *John Comyn* (d. c. 1300) was a Scottish baron and nephew of the Earls of Buchan and Mentieth, from the latter of whom he inherited the lordship of Badenoch. He took part in the negotiations between Edward I. and the Scots (1289), and was one of the claimants for the Scottish throne on the death of

Margaret, the Maid of Norway. He fought, however, for John de Baliol, but in 1296 submitted to Edward I. and came to England. His son *John*, known as the Red C., also fought for Baliol, and was kept as a hostage in England for a time. After the Battle of Falkirk he was made guardian of Scotland, and for five years carried on the feud with England. He has become famous on account of his quarrel with Robert Bruce, the origin of which is unknown, but in Jan. 1306 they met at Dumfries, and as a result C. was stabbed to death, whether by Bruce or his followers is not known.

Conacre (a corruption of corn-acre), an obsolete land system once

elected secretary of the United Textile Workers of America. Sole woman labour representative at the conference convened by President Wilson in 1918. Also sole woman representative for U.S.A. at the British Trades Union Congress, 1920, when she represented the American Federation of Labour; and one of four women chosen by President Harding to take part in the Conference on Unemployment held in Washington in 1921. Also chairman of the Advisory Board on Vocational Training in the public schools of New York.

Conca, *Sebastian* (1676-1764), an Italian oil- and fresco-painter, who studied under Solimena. In his work he was an imitator of Pietro da



CONCARNEAU

prevalent in Ireland, under which small patches of land were let out for potato growing in lieu of wages.

Conant, *Thomas Jefferson* (1802-1891), American Hebrew and biblical scholar, b. at Brandon, Vermont. From 1827 to 1833 he was Professor of Gk., Latin, and German at Waterville College (now Colby College); from there he went to Hamilton, New York, as Professor of Biblical Literature and Criticism (1835-51), and thence to Rochester Theological Seminary as Professor of Hebrew and Biblical Exegesis (1851-57). The American Bible Union entrusted him with the revision of the N.T. (1871), and he published revised versions of many of the O.T. books. He also translated Gesenius's *Hebrew Grammar*, 1839.

Conboy, *Mrs. Sara Agnes* (1870-1928), American woman labour leader, b. at Boston and educ. in a common-school. In 1915 she was

Cortona, whom he resembled in his superficiality and rapidity. Of his works the 'Sacred Pool of Siloam,' in the hospital of Santa Maria della Scale at Siena, is the best.

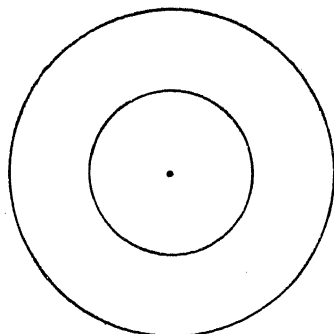
Concan, a maritime dist. of Bombay, India, stretching N. and S. from Daman to Goa, and E. and W. from the Ghats to the Indian Ocean. Its extent is about 300 m. long, and an average of 40 m. broad. It covers the British dists. of Tannah and Ratnagiri. The climate is subject to violent monsoon rains.

Concarneau, a seaport in the dept. of Finistère, France, 14 m. S.E. of Quimper. The old town, which is surrounded by ramparts, is believed to date back to the fourteenth century; it lies on an is. near the bay of La Forêt, while the newer portion, St. Croix, is on the opposite shore. It is a centre of the sardine, mackerel, and tunny fisheries. Pop. 7710.

Concave (Lat. *concurvus*, hollowed)

and **Convex** (Lat. *convexus*, vaulted) are two opposite terms. As there etymological derivation signifies, the former is applied to a surface falling, the latter to a surface rising in a circular form. Thus the outersurface of a saucer is convex, the inside concave. In mathematics a line is convex on the side on which the point of intersection of two tangents falls, and on the other side concave.

Concealment, in the law of contract, means any improper suppression of facts or circumstances by one of the parties to a contract so as to induce the other party to enter into it. In certain contracts, styled contracts *uberrimæ fidei* (of the utmost faith), each party must make the fullest disclosure of all material facts within his knowledge, or the contract will be voidable at the option of the party misled. The remedy for



CONCENTRIC CIRCLES

a fraudulent C. is an action to rescind the contract and for damages; for an innocent but material C., rescission only. In criminal law, a person knowing of any treason or felony without in any way assenting to it, is guilty of misprision if he conceals his knowledge. Misprision of felony is punishable by fine and imprisonment, misprision of treason by imprisonment. Various acts of C. by a bankrupt if fraudulent render the bankrupt liable to certain penalties under the Debtors Act, 1869. C. of treasure trove is punishable by fine and imprisonment. C. of birth is a misdemeanour punishable by imprisonment. C. of documents of title to land or any testamentary instrument is a felony punishable by imprisonment.

Concealment of Birth, see **BIRTH**, **CONCEALMENT OF**.

Conceição de Nogueira, a tn. of

Brazil, in the state of Minas-Geraes, 85 m. N.E. of Ouro Preto. It has gold and iron mines. Pop. 10,000.

Concentric (*con* and *centre*), the name which is applied in mathematics to any two or more similar figures which have a common centre. Thus the upper and lower edges of the rim of a wheel form two concentric circles.

Concepcion: (1) A prov. of Chile, situated between Nuble on the N., and Biobio and Angol on the S. Its area is about 3260 sq. m., and there are large and extremely fertile plains. The capital, C., is a seaport, situated on the r. b. of the R. Biobio, 7½ m. from its mouth, and 270 m. S.S.W. from Santiago. Talcahuano, however, on the Bay of C., is more used as a port. C. has a considerable trade in grain, hides, tallow, timber, salt beef, etc., and in the vicinity are large coal mines. The town was founded by Pedro Valdivia in 1550. In 1739 it was destroyed by a volcanic eruption, and again in 1751. The earthquake in 1835 once more reduced it to ruins, but it is now a well-built town. Pop. (prov.) 305,381; (tn.) 67,000. (2) A tn. of Paraguay on the l. b. of the Paraguay R., about 135 m. N.N.E. of Asuncion. It has an important trade in maté tea. Pop. 15,000.

Concepcion de la Vega, a tn. of San Domingo, 5 m. S.E. of Santiago, on the Camu. It has a fine cathedral. Pop. 6564.

Concepcion del Uruguay, a tn. in the prov. of Entre Rios, Argentina, on the r. b. of the R. Uruguay, on the Entre Rios Railway. It has a college, slaughter houses, and new port works. Pop. 20,000.

Concept and Conceptualism. *Concept*, a term in philosophy, logical, metaphysical, and psychological. It is the result obtained by the mental process popularly known as 'abstraction.' We recognise various particular objects which we call 'horses,' and form a general idea, by abstracting certain common qualities from these particulars, of a universal 'horse'; the mind 'affirms' a concept 'horse,' by a process of abstracting, combining, and reconstructing of 'perceptions'; thus 'conception' is contrasted with 'perception.' *Conceptualism* was the scholastic theory, mainly connected with the name of Abelard, which in attacking the rival theories of Nominalism and Realism, attempted to steer a middle course between the two. The question in debate was as to the nature of genera and species; do they exist in themselves or only in the mind? While the Nominalists held that 'universals,' i.e. genera and species, are only names invented to express

the term of qualities expressed, *e.g.* by the term 'horse,' and are *post res*, i.e. after things, subsequent; the Realists affirmed that 'universals' have real existence and are antecedent, *ante res*. The conceptualist theory held that they are concepts, existing in the mind expressing a similarity: they are really existent, but not apart from particular objects to which they apply, or, as Abelard put it, a 'universal' obtains reality by being predicated of anything; *e.g.* there is no reality in the concept 'horse' till you affirm 'Persimmon is a horse.' The rival schools had a great influence in the development of mediæval theology. Abelard's conceptualism swayed too much towards the dangerous, materialistic Nominist school for him to escape the attack of the Church.

Concert, in music, is musical harmony. Concerted music is that written for two or more instruments, where each part is of equal importance.

Concertina, or **Melodion** (Fr. *concertina*, Ger. *harmonica* or *bandoneon*), is a wind instrument with free reeds. It is composed of two hexagonal or rectangular keyboards which are connected by a long, expanding bellows. On the keyboards are rows of knobs, which when pressed open valves which admit the air to the free reeds, by whose vibration the sound is formed. The reeds are narrow slips of brass riveted to the inside surface of the keyboard at one end. The outer ends are bent in alternate ways; those bent inwards are actuated by compression, those outwards by suction. The length and thickness of the reeds determine the pitch. The Eng. C. was invented and patented by Sir Charles Wheatstone in 1829; it has a double action, playing the same note on compression and expansion. The Ger. variety, on the other hand, plays two different notes when compressed and then expanded. The C. is made in several varieties—treble tenor, bass, and double bass—the compass of the whole set being seven octaves. The timbre of the instrument is soft, and capable of delicate gradations. The capabilities of the C. have been recognised by many musicians, concertos having been written for it by Molique, Regondi, and Tschalkowsky.

Concerto, a musical composition written with an orchestral accompaniment, calculated to display the powers of an instrument or a performer. Cs. are generally written for a solo instrument, though Bach's Cs. for two or more pianofortes, Mozart's for two pianofortes, and Beethoven's for pianoforte, violin, and violon-

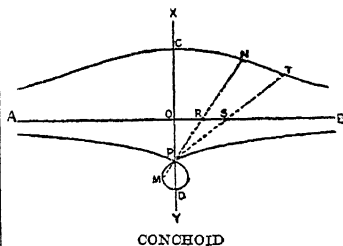
cello, may be cited as exceptions. A C. consists of three movements, which require a clear development and a strict adherence to the rules of form; like the sonata, on which it is founded. There is usually a cadenza in the first, or sometimes in the last movement; this is an embellishment or flourish, prepared or improvised, for the solo instrument. Few examples of classical Cs. for wind instruments are found, though Weber's clarinet C. is an exception. The earliest composer to write Cs. was Torelli, whose work dates from 1686. Since that time modifications have been introduced by Corelli, Geminiani, Bach, and others; Mozart gave it its modern form, although Beethoven introduced some modifications of this.

Concert-pitch, the pitch of a certain note in the musical scale. It is determined by the number of vibrations made per second by the string. Middle C. is produced by the string making 512 vibrations in a second.

Conch (Gk. *κόγχη*, a mussel or cockle shell), the name applied to various shells, but especially to the fountain-shell, a species of gastropod mollusc in the wing-shell family. In art it is represented by a *Triton* shell, from the allied family *Tritonidæ*.

Conchifera, the term which Lamarck applied to the *Acéphales Testacés* of Cuvier, together with the *Brachiopoda*, which forms Cuvier's fifth class of molluscs. The term *Acephala Testacea* has been replaced by modern zoologists by *Lamelli-branchiata*.

Conchoid (*κόγχη*, shell, *είδος*, form), a plane curve invented by Nicomedes, who used it to solve the problem of the duplication of the cube, the tri-



section of an angle, etc. AB is a fixed straight line and P a fixed point. Equal straight lines are drawn through the point P so that they are bisected by the straight line AB, and their ends trace out the two branches of the conchoid. Thus, in the figure, $OC=OD=RN=RM=ST=SP$.

When OD is greater than OP the lower branch forms a loop below P, as in the figure; when $OD=OP$ a cusp is formed at P; when OD is less than OP the lower branch does not reach P. The curve is obviously symmetrical about the straight line XY.

Conchology, the branch of zoology which treats of molluscs with reference to their shells. Some time ago the science of C. was immensely popular, but it is now recognised that the inhabitant of any shell is much more important than the shell itself to science.

Conchos, a riv. of Mexico, which rises in the E. of the Sierra Madre, and, flowing through the state of Chihuahua for about 350 m., joins the Rio Grande del Norte at Presidio del Norte.

Concierge, a Fr. word, signifying the janitor or door-porter commonly attached to a Fr. house. He has a small office near the front door or main entrance, and his duties are to admit visitors, and receive parcels, telegrams, telephonic messages, etc.

Conciliation in Industry. Machinery for the settlement of industrial disputes by C. and arbitration has been in operation in various countries for many years. The Conciliation Act of 1896, combined with the Industrial Courts Act, 1919, are the characteristic British form of the system, with its emphasis on voluntary resort to investigation, conciliation and arbitration by competent tribunals. Such voluntary resort with or without assistance from the Gov. has been long established in all the well-organised British industries. Trade Boards supply a need in those less well organised. At the opposite extreme is the principle of compulsion. Australia and New Zealand are conspicuous among the countries which have adopted this principle. In Queensland the arbitral tribunal established by law has legislative functions, in the sense that its awards have legal effect even as respects employers and employees who may not have been involved in the dispute which gave rise to the award. Important changes in the machinery of C. have been made by most countries in the past ten years, but no perfect system has yet been evolved. This is shown by the fact that the direct loss in working days in Great Britain for the period 1919-23 was two and a half times greater than in the period 1909-13, and nine times greater than in 1904-8. Far more disputes are settled by the voluntary machinery set up by the trade unions and organised employers

for purposes of joint consultation than by any other agency; but cases do arise from time to time which call for mediation and where collective bargaining is out of the question. The Act of 1896 did little more than empower the Board of Trade to inquire and report, and it was not until 1911, when the Industrial Council was established, that any attempt was made to systematise the application of the principle of C. embodied in the Act of 1896. But this body had no power to require disputants to refer to it, the voluntary character of the Act being maintained. In 1919, however, the Standing Industrial Court was established under the Industrial Courts Act, consisting of independent persons and representatives of employers and employees, to deal with such disputes as might be referred to it with mutual consent, or to investigate the circumstances if the Ministry of Labour deemed inquiry to be desirable. Neither an award by the court nor the findings of an inquiry were made binding. In its original form the measure contemplated compulsory arbitration and the attachment of trade union funds for strikes against the decisions of the arbitrators. This was necessarily opposed by the unions, with the result that the voluntary tradition subsists. It has been well said that the Act lies on the border line between arbitration and C. For systems of C. are concerned mainly with psychological factors in disputes, whilst arbitration is concerned also with economic causes, and rests on a foundation of impartial investigation of facts by some unprejudiced tribunal. Many advocates of C. think that almost any system of C. is useful in so far as it promotes investigation. The method of arbitration, on the other hand, leads to the formulation of agreed principles of determining wage questions. In Australia and New Zealand, *e.g.* the system which began last century as a method of averting strikes and lock-outs has developed into one of wage regulation, based on a fairly scientific attempt to ascertain what wages can and ought to be paid. On the whole experience seems to reinforce the traditional British method of voluntary C. and arbitration; but it also tends to strengthen the opinion that power should lie in the background to compel inquiry, and that the tribunal should be such as would ensure its permanence and the continuity of its operations. (*See also* ARBITRATION.)

Conclave (room), the name given to the place of assembly when the

cardinals of the Rom. Catholic Church meet to elect the Pope. The name is also applied to the assembly itself. The regulations for such a meeting were laid down in 1274 by Pope Gregory X., who had suffered from the dilatoriness of election then prevailing. By them it was laid down that after ten days from the Pope's death the cardinals present should assemble in the palace, and should be secluded until they had elected the deceased Pope's successor. These regulations are still observed in the main; since most of the Popes have d. at Rome the Vatican has been the usual place of the conclave.

Concord, in music, is an agreeable combination of sounds. They are the octave, fifth, third, and sixth, and their ratios are 2 : 1, 3 : 2, 5 : 4, 5 : 3. The first two are perfect and the last two imperfect.

Concord : (1) The capital of New Hampshire, U.S.A., and county seat of Merrimac co., on the Merrimac R. It has some fine public buildings, including a state house, built of granite, a state library, and the Margaret Pillsbury Hospital. It has some celebrated white granite quarries, and manufactures of machinery, carriages, woollen, cotton, and leather goods, shoes and pianofortes. Benjamin Thompson, the statesman and natural philosopher, who styled himself Count Rumford, was a schoolmaster here in 1770-72, and it was the home of Mrs. Eddy, the discoverer and founder of Christian Science. Pop. 25,228. (2) The county seat of Cabarrus co., N. Carolina, on the Southern Railroad, 21 m. N.E. of Charlotte. It has textile mills. Pop. 11,820. (3) A town in Middlesex co., Massachusetts, on the Concord R., 23 m. N.W. of Boston, on the Boston and Maine Railroad. The first skirmish in the War of Independence took place here on April 19, 1775 and an obelisk marks the spot where the first British soldiers fell in the War of Independence. In it have lived many notable men of letters, including Emerson, Hawthorne, and Thoreau. Pop. 7477.

Concordance (late Lat. *concordantia*, agreement), the name given to a book containing a citation of parallel passages in any work, and an alphabetical arrangement of words contained therein, with reference to the passages where they are found. Originally each group of parallel passages was called a 'concordantia,' and the plural form 'concordantiae' used for the collection of such passages, and the Gers. still distinguish between Cs. of things and Cs. of words. The first book to which Cs. were made was the Bible; the reason

for this was the belief that was formerly held that all the parts of the Bible were in harmony with each other, and formed one divine whole. Anthony of Padua (1195-1231) is said to have been the author of the earliest C. we have, an anonymous work based on the Vulgate. The first authentic C. was that of Cardinal Hugh of St. Cher, a Dominican monk of the middle of the thirteenth century; he is said to have felt the need of such a work for his studies, and to have employed 500 monks to aid him in compiling it. The Cs. of Conrad of Halberstadt (fl. c. 1290) and of John of Segovia in the fourteenth century were based on the work of Hugh. The first Hebrew C. was compiled between 1437 and 1445 by Rabbi Mordecai Nathan, and printed at Venice in 1523 by Daniel Bomberg. It was entitled *Meir Natib* (Light of the Way), and served as the basis for the C. in four volumes of Marius de Calasio, a Franciscan monk, dated 1621. The C. of Johann Buxtorf, senior, is only useful to those acquainted with the massoretic method. Cs. of biblical proper names have been published by G. Brecker (1876) and Schusslovicz (1878). In 1642 Conrad Kircher of Augsburg produced a C. to the Septuagint, and Abraham Tromm one in 1718, giving the Gk. alphabet. The best modern C. on such lines is that of the Clarendon Press, Oxford, *A Concordance to the Septuagint and the other Greek Versions of the Old Testament, including the Apocryphal Books*. This was published in 1897, and a C. of proper names was added in 1900. The first Gk. C. to the N.T. is that of Nystus Betuleius (1500-54); other Cs. were produced by the Stephens, father and son, and Erasmus Schmid, a Lutheran divine, whose work forms the basis of most subsequent Cs. A C. of the Gk. text with an Eng. version to each word, and the principal Hebrew roots corresponding to the Gk. words of the Septuagint was produced in 1767 by J. Williams. The first C. of the Eng. version of the N.T. is that of T. Gylson (1535), and the first Eng. C. of the entire Bible was produced by J. Marbeck in 1550. Cruden's C., which is the basis of all modern Cs. was produced in 1737, with the title, *A Complete Concordance to the Holy Scriptures of the Old and New Testament, to which is added a Concordance to the Works called Apocrypha*; Dr. R. Young's *Concordance*. Since the value of a C. was discovered, the works of many other authors have been furnished with more or less complete Cs., notably Shakespeare, Browning, Dante, Chaucer, Milton, and Shelley.

Concordat, a term which originally denoted merely a compact or an agreement. Later it came to mean an agreement between the ecclesiastical and secular authorities on matters which concerned both. From this usage came that which is at present the one most commonly meant; a C. is a compact between the Pope, as head of the Roman Catholic Church, and a temporal sovereign, having for its object the regulation of ecclesiastical affairs within the dominion of the sovereign. A C. may take any one of three forms. The Pope may consult with the Gov. with which the C. is to be drawn up, and then issue a papal bull to regulate the affairs of the Rom. Catholic Church in that country; the contents of the bull are incorporated by the Gov. in the law of the land. This was the method pursued in the C. drawn up in 1516 between Leo X. and Francis I. of France. Another method is for two identical separate acts to be drawn up; the Pope signs one of these, and the sovereign the other. The first true C., that of Worms, in 1122, was drawn up in this way. The third and most common method is for a formal treaty to be drawn up after consultation, signed by plenipotentiaries on both sides, and ratified by the high contracting parties. Such a method was adopted in the Fr. C. of 1801. A C. is naturally concerned with such matters as affect both the Church and the State, as Church property, ecclesiastical appointments, the rights of the clergy, regulation of public worship, etc. Various views are held as to the binding force of a C. Some secular jurists have held that such a compact can be annulled at will by the State; extreme ultramontanes have declared it to have no binding power on the Pope. The common-sense view is that such a contract, like any other, is binding on both the contracting parties, with the proviso that no Gov. can guarantee that the stipulations of a C. will be accepted by the next Gov. in office.

Concord, **Book of**, or the nine Symbolical Books of the Lutheran Church, of which the Apostle's Creed, the Nicene and the Athanasian Creeds are borrowed from the Roman Catholic Church. The Lutheran books proper are the Augsburg Confession, drawn up by Luther, Melancthon, Jonas, and Bugenhagen (1530); the Apology for the Confession by Melancthon (1530); the articles of Schmalkald by Luther (1537); the Smaller and Larger Catechisms of Luther (1529); and the Formula of Concord, drawn up by six Lutheran divines (1577). The whole was

united by order of Elector Augustus of Saxony and officially recognised as the B. of C. at Dresden on June 25, 1580. The first translation of the B. of C. into Eng. was made by Ambrose, Socrates Henkel, and others in 1851.

Concordia, the Rom. goddess of harmony and peace, to whom many temples were raised. The earliest of these was that of Camilus, erected in the Capitol (367 B.C.), celebrating the reconciliation brought about between



CONCORDIA

the patricians and the plebs by the Licinian laws. The Senate frequently met in this temple, and here Cicero delivered his famous oration against Catiline. The goddess is represented on coins as a matron, holding in one hand an olive branch and in the other a cornucopia.

Concordia: (1) A tn. of Argentina, on the Uruguay R., in the prov. of Entre Ríos. It has large slaughter-houses, iron works, brick factories, and flour mills, etc. The chief exports are Paraguay tea and salt meat. Pop. 28,000. (2) A small tn. in Italy, 34 m. N.E. of Venice, which is known for its ancient cathedral.

Concrete, a building material composed of a cement (*q.v.*) which will enter into chemical combination with water forming a solid, mixed with definite proportions of sand and broken stone or other binding materials. Thus the cement as it hardens binds these together, forming an artificial stone. Its value lies in the fact that it can be moulded to any required shape, and that its components can be obtained almost anywhere. Its manufacture is neither costly nor difficult, and though its appearance is not equal to natural stone, yet since it can be used in

many cases where natural stone cannot be laid, it is of great use in the building trade generally. Furthermore, because of its property of hardening under water, it is the chief material used in the building of culverts, piers, breakwaters, and dock walls, in fact in all places where it will be exposed to the action of water.

History.—Since the earliest times it has been known to builders, although it is only during modern times that its use has become so marked. The art of mixing and proportioning the various ingredients possessed by the ancients is now lost, but it is certain that it was used by the Romans prior to 509 B.C., while there are many evidences of their use of it in this country. Even in Mexico and Greece the use of it has been demonstrated. As examples of its use by the Romans, it may be mentioned that the great dome of the Pantheon was constructed entirely of C., while in the House of the Vestals an upper floor, of 20 ft. span and 14 in. thick, supported on corbels projecting from the walls, was made of the same substance, as also were the vaults in the Baths of Caracalla. More recently it has been extensively used in the foundations and construction of many of our own castles, churches, abbeys, and cathedrals. The foundations, walls, and roofs of, among many others, Westminster Abbey, Salisbury, York, Ely, and Norwich cathedrals, Hastings and Rochester castles all give evidences of this fact. The staircase at Hastings Castle—one of its main features—and the chief staircase and passages in the old Tower of London are made of C. With regard to domestic buildings, there are not many in existence showing its extensive use, as in the case of the larger types of buildings already mentioned, but many of the old cottages in the S. and S.W. of England are built of walls composed of unburnt clay, chalk, and straw pressed together, making a primitive kind of C., which nevertheless is well able to withstand the ravages of time and weather. Further, the old-fashioned method of making the upper floor of plaster spread over rushes laid on the joints and then brought to a face, as can be seen in many of the old houses in Leicestershire, Derbyshire, and Nottinghamshire, is the primitive forerunner of the modern fireproof floors.

Composition.—C. is always composed of the hard lumps, forming the *aggregate*, and the mortar in which they are embedded, which forms the *matrix*. The matrix usually consists of lime or a cement, which has the

property mentioned above of solidifying under the action of water. The oldest matrix is lime, having been used by the Romans, and it is still used for any foundations and small buildings, in fact it is greatly used in those cases where great strength is not required, or where weight alone is the desideratum, because of its comparative cheapness as compared with Portland cement. It cannot be used, however, under water, or where loads are to be applied in a short while after laying, nor can it be used where the C. is to form pillars, beams, or walls. When lime is to be used as a matrix, it should not be pure, but should contain argillaceous material. It is usually broken into small lumps, and a small amount of water added, after which it is allowed to stand for about forty-eight hours. It then breaks down into a powder (hydrate of lime), and after being screened to remove any lumps, it is stored in a dry place until required. Sometimes tar or pitch is used as a matrix, in which case, of course, no water is used, but the matrix in this case has to be mixed with the aggregate and moulded while hot, and its action depends on the fact that it loses mineral oils by evaporation and solidifies on cooling. The commonest matrix, however, is Portland cement, and it is at the same time the strongest and the best. It is made by calcining a mixture in definite proportions of carbonate of lime and slag or clay, and afterwards pulverising it into a powder. It is packed in bags or barrels, and must be stored in dry places. The manufacturers of Portland cement have now combined into one large firm, with a consequent standardisation of the material, but it is usual for large users to specify their particular requirements, and then to submit the cement to certain tests. (*See CEMENT.*) The aggregate, again, is subdivided into *fine aggregate* and *coarse aggregate*. Fine aggregate consists usually of sand, which must be coarse-grained and hard. It must further be free from dirt, *i.e.* clay or mud, since that prevents the cement from clinging to it, and it must also contain no sewage or other vegetable matter, since that acts chemically on the matrix, destroying it. Sand formed by crushing granite or other hard stone forms an excellent aggregate, while, if lime forms the matrix, powdered bricks are often used as a fine aggregate, since this substance will enter into chemical combination with the lime. The coarse aggregate is commonly composed of broken stone or natural flint gravel. Sometimes broken bricks or tiles or furnace slag are used. In any

case, however, it must be hard, clean, and durable. Spherical pebbles are always avoided, and although as a rule it might be supposed that rough-surfaced, coarse aggregate would be the better, yet it has been found that very often rough stones give a less compact C. than smooth ones, on account of the difficulty of thoroughly embedding them. Again, Portland cement adheres well to smooth flint surfaces. Modern practice prefers

gate to matrix may vary from 3:1 in strong work to 12:1 in unimportant work, the proportion depending to a great extent on the quality of the work. It is usual, however, to have the aggregate divided into fine and coarse, *i.e.* sand and stone. Then the sand and cement are mixed in proportions of one of cement to from one to four of sand. By very simple tests, such as the filling of a can with stones, afterwards filling the spaces left with



[Cement Marketing Board]

A NOBLE EXAMPLE OF THE USE OF CONCRETE IN AMERICAN ARCHITECTURE

irregular-sized stones as an aggregate, but too large stones are always rejected. In ordinary C. work the stones are usually chosen so that they will pass through a ring 3 in. in diameter, while for reinforced C. stones no larger than 1 in. in diameter are used. In massed work, huge stones as large as a man are embedded in the matrix, care being taken to leave at least an inch of cement between each stone. This is called *rubble C.*, and is only used where direct loads alone are expected.

Proportions.—When flint gravel containing sand and stones is used as an aggregate, the proportion of aggre-

gate to matrix may vary from 3:1 in strong work to 12:1 in unimportant work, the proportion depending to a great extent on the quality of the work. It is usual, however, to have the aggregate divided into fine and coarse, *i.e.* sand and stone. Then the sand and cement are mixed in proportions of one of cement to from one to four of sand. By very simple tests, such as the filling of a can with stones, afterwards filling the spaces left with

portions 1 : 2 : 5 respectively. Sometimes the proportions are arbitrarily fixed, and the proportions are sometimes found by mixing different proportions of the three constituents in equal volumes and finding which mixture is the densest, that being the best. In general, however, it might be said that 1 : 2 : 4 is the proportion for fine work, and variations up to 1 : 4 : 9 for less important work, or work which will only be subjected to a compressive strain. Theoretically, 16 per cent. is all the water that is required, but in cold weather, and when the work is rammed together, enough water is added to moisten it. In hot weather, on the other hand, and when no ramming is used, or when an absorbent stone forms the aggregate, a large amount of water is added. In most cases now a generous supply of water is added, especially in reinforced C. work, so that the C. may flow easily around the steel work.

Mixing may be done by hand or machine. In hand-work the sand and cement are mixed first on a wooden platform with a shovel, and then the water, and finally the stone are added, the whole being thoroughly mixed until the stones are well distributed in the mass. Mixing machines are of two types: (1) Those which consist of a strong iron box rotating and so tumbling the constituents over one another until they are well mixed; and (2) those with a shaft or trough, fitted with sloping baffle plates, into one end of which the dry constituents and water are introduced, the whole being taken through by gravity or motor power, as the case may be, to the other end and mixed on its way. The first type is the most successful in use, but it necessitates filling and dumping for each batch made, whereas the second type is a continuous mixer.

Strength.—The strength of C. depends on a large number of circumstances, among which may be mentioned the quality of the constituents, the proportions in the mixture, and the method of depositing. Again, the strength, as in any material which has hydraulic cement as a binder, increases with age. This strengthening increases very rapidly during the first few hours, and then gradually until a maximum is reached, except in cases where large masses are laid down, at about six months. It may be said roughly that for lime C. the crushing load is about $\frac{1}{2}$ cwt. per sq. in., while for Portland cement C. it may vary from 1 to 5 cwts. per sq. in. Its tensile strength may be regarded as being about $\frac{1}{10}$ of its crushing strength, and on this account it is usually regarded as being negligible.

Durability.—C. is among the most durable substances. It is not affected by heat or cold or wet, although it must be remembered that it must not be exposed to frost before it has set, otherwise it loses its strength. Where the work is exposed to the air or to running water, lime C. cannot be used, since it gradually decomposes. In 1887 several cases of failure of Portland cement C. structures led to investigations, which proved that the sulphate of magnesia present in sea water acts on those Cs. which contained unburnt lime or alumina. To guard against this, C. for structures in sea water is carefully chosen to exclude these substances, or other sulphates, notably gypsum. If a dense C. be then made so that it shall be non-porous, no great decomposition need be expected. In the case of reinforced C. also, it is necessary to use a dense C., so that the metal shall not be decomposed by the action of moisture and air to the destruction of the mass, as would be the case in a porous C.

Moulds.—Since C. is laid down in a soft state, it is necessary to use some form of mould to keep it in the finally desired shape and size. Yellow pine is used for ordinary moulds, although American poplar, canary wood, or American white wood is used in making special moulds, because of its fine uniform texture; these are brought up to a smooth face, and painted with a mixture of linseed and paraffin oils in the proportions 2 : 1, to protect the face of the mould, to keep the moisture from soaking into it, and to enable the casting to be easily removed from the mould when set. Again, in making walls the mould is formed of planks set on edge, closely held together by ingeniously designed metal clasps, or by being pressed against vertical wooden standards which are braced together and to the ground by other wooden struts. They are, of course, made strong enough to resist the pressure placed on them, and tight enough to prevent leakage. Four or five of these planks are laid upon each other and the C. is filled in, then, as the C. sets, the lower planks are removed and placed on top and more C. is added, and so on until the desired height is reached.

Concrete blocks, made in moulds as described above, are used now in the same manner as stone is used, being set in a cement mortar. They are almost always cellular in form. Large firms have taken up the making of these artificial stones, and have special plants for their manufacture, which include hydraulic presses for washing, mixing, consolidating, and

drying the artificial stone, and in general zinc lined moulds are used. In those parts, such as Leicestershire, where granite is plentiful, it is used as the aggregate throughout the casting in the making of artificial stone, slabs, steps, etc., but in the S., and where granite, limestone, slag, or quartz has to be imported, the facings only are made of these materials, the core being made of local materials such as crushed bricks, ashes, clinkers, etc. As examples of these artificial stones may be mentioned granolithic, globe granite, and synthetic stones. Victoria stone, among others, is immersed in a bath of silicate of soda of various strengths. This is supposed to harden them, but another view is that it merely matures the stone much quicker than the ordinary method of exposure to the air. In any case it is agreed that it adds to the strength of the stone, although an ordinary water bath answers the same purpose. There is an artificial stone, Ford's silicate of lime stone, made with lime mortar, which can be dressed and carved like a fine sandstone.

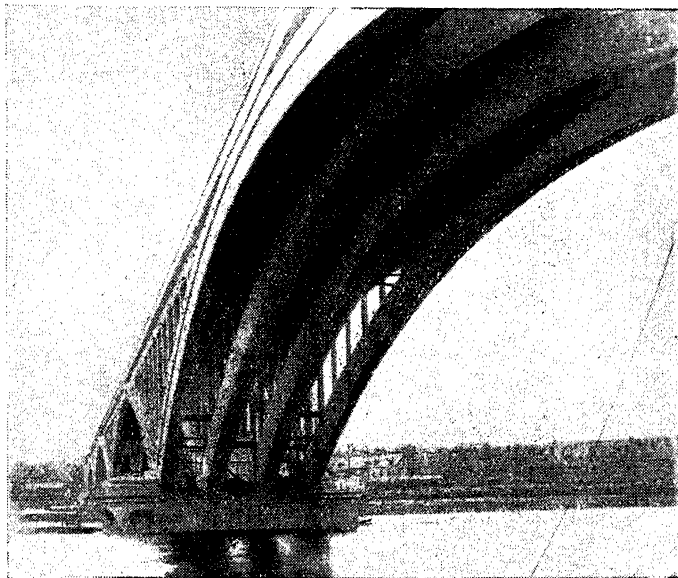
Use of Concrete Under Water.—When C. is used in the making of dams, breakwaters, etc., it is necessary to use a good cement, in which the lime has been carefully hydrated. Several methods are employed, among which may be mentioned: (1) that in which the dry C. is taken out in barges and sewn up in large sacks, which are then dropped through the bottom of the barges; (2) that in which temporary cofferdams are set up and the material is dropped down inside the contained area, it being usual in this case to lower gently in bags which can be emptied close to the place desired, so preventing much separating of the aggregate from the matrix; (3) that in which huge slabs weighing from 20 to 100 or more tons, specially grooved to fit into each other laterally and longitudinally, with vertical cylindrical holes in them, are slid down over steel tubes which are firmly fixed into the rock bottom. The wall then, of course, is firmly knitted together and to the sea floor.

Fire-proof Structures.—There is no better protection for steelwork against fire than C. It has a low conductivity, so that heat cannot quickly pass through it. In actual fires the only damage caused has been a little surface spalling. Because of this it is used as a coat from 2 to 3 in. thick over steelwork, sometimes being strengthened with a wire mesh, and also by itself in fire-proof floors. When used in this manner the coarse aggregate is very often formed from cinders.

Finish.—The colour of C. as a rule destroys any pretensions to beauty, while since it takes a reflection of the grain and shape of its form, its faces require special treatment. Several methods have been adopted for improving its appearance: (1) After having hardened in the mould, a surface coating of cement mortar is added. This has the great disadvantage that the mortar peels off, and therefore it is not much used; (2) in ordinary work as the C. is deposited in the moulds it is carefully spaded away from the faces of the mould, so ensuring a dense and even surface; (3) another method in which the hardened surface is gone over with a tool producing a dressed face as in stone work; (4) sometimes the moulds are removed before the C. is thoroughly hardened, and the faces are scrubbed with a stiff wire brush until the aggregate shows through the face, this and the previous method being those usually employed in better class work. Other methods again are (5) scrubbing the hard surface with a hard stone, and (6) treating with acid to reveal the aggregate as when the soft surface is scrubbed. In recent years the use of C. has greatly increased, and with few exceptions large modern buildings are composed mainly of C. reinforced with steelwork. It is also being used in places where wood was formerly used, as in the case of barges made of C.; these have proved superior to wooden barges, in that they do not deteriorate so rapidly, and weeds and other growths do not grow so quickly upon them. Another large field of application has been opened by the invention of the C. gun. In this machine the cement and sand are first mixed, then they are fed into the gun and are mixed with water, and at the same time are forced out of the gun by compressed air. This gun is largely used for refacing old structures and for the embedding of steelwork in C. to prevent it from rusting; in mines it is sprayed on the surface of old workings, in order to prevent collapse of the soil. Repairs to reservoirs, breakwaters, dams, walls and in some cases chimneys are effected by the use of this gun. C. can be made impermeable to moisture by the addition of one of several ingredients—namely, oil, insoluble soap, water-glass and one or other of special materials sold under various trade names. A preparation is also made with which may be painted the surface of C. or other brickwork to render it impermeable. Coloured C. is made by the addition of crushed coloured glass to the mixture; this has the effect of brightening what

would otherwise be a rather drab building. A striking illustration of this effect is offered by Carreras' 'Arcadia Works' in Kentish Town, London. Great use is made of C. in the garden, and garden-vases, bird-baths, fencing-posts, paths and also crazy-paving are all examples of the numerous uses to which C. can be put. See books on Concrete by Potter, Sutcliffe, Reid, and Jay; Taylor and Thompson, *Treatise on Concrete, Plain and Reinforced*. See

concubines; the position of the latter was not utterly despised, and their children had some status, if recognised by their father. The Rom. law, too, recognised concubines; their position was in many cases respectable, but Augustus, to encourage regular marriages, passed the Lex Julia and the Lex Papia Poppæa, which enacted that only women of low rank should be chosen as concubines. The children of concubines were not legitimate, but were called



[Cement Marketing Board

THE CONCRETE ARCHES OF BERWICK BRIDGE

FERRO-CONCRETE, REINFORCED CONCRETE, CEMENT.

Concrete, in logic, a term opposed to 'abstract,' usually defined as a term applied to or signifying persons or things as opposed to abstract terms, signifying qualities; thus a sweet taste is C., sweetness is abstract; red as a colour is C., redness is abstract. However, some logicians place adjectives apart as attributives.

Concretion, see GEOLOGY.

Concubinage. The cohabitation of a man with a concubine is a very anct. custom. Among the Gks. married men were allowed to have

'natural,' and their right of inheritance was very limited, though they were rendered legitimate if their parents afterwards married. In the O.T. times C. was permitted as a relief from a barren marriage, and was extensively practised. The anct. Gers. had laws which permitted a sort of informal marriage similar to a morganatic union. Christianity did not permit such irregular unions, and Constantine the Great was the author of legislation intended to check the practice. The Eastern empire also prohibited C. Under the law of France, if a man brings a concubine to stay in the same house as

his wife, the presence of the former entitles the latter to divorce.

Concussion of the Brain, a form of shock where the injury received has shaken the brain and reduced the patient to a state of stupor, without producing any mechanical injury to the brain or skull. Any severe blow on the head will cause concussion; the symptoms are complete unconsciousness, with pallid cold skin, and feeble pulse. This condition continues for a length of time varying with the severity of the shock received, when the pulse becomes stronger and consciousness returns. Though the recovery from concussion is usually complete, such symptoms as loss of memory may remain for some time. The patient should be put to bed as quickly as possible with hot-water bottles, and should then be left alone. No stimulants should be given unless specially ordered by the doctor in charge; and during the period of recovery all excitement is to be avoided.

Condamine, La, Charles Marie de (1701-74) a Fr. scientist, was *b.* in Paris. In 1735 he assisted in measuring an arc of the meridian, on the plain of Quito.

Condapilli (Kondapilli), a small tn. and hill-fortress of British India, Madras Presidency, on R. Kistna, 50 m. from Masulipatam. No longer important as a fortress, it manufactures small figures and toys from a light wood obtained near by (*Gyrocarpus Jacquinii*). Pop. about 5000.

Condé, Henry I. de Bourbon, Duc d'Enghien, Prince de (1552-88), son of Louis I., a Fr. Huguenot leader; he fought for Henry of Navarre under Admiral Coligny. To save his life after the massacre of St. Bartholomew he embraced the Catholic faith, but on the death of Charles IX. he recanted and went to Germany, where he raised an army and joined Alençon, 1575. Eventually he was taken prisoner and *d.* from the effects of poison supposed to have been given him by his wife, Catherine de la Tremoïlle.

Condé, Henry II. de Bourbon, Duc d'Enghien Prince de (1588-1646), son of Henry I. and father of the 'Great Condé.' He was a Rom. Catholic, and in 1609 Henry IV. brought about his marriage with Charlotte Marguerite de Montmorency. To save his wife from the king, who had also fallen in love with her, C. fled to Spain and remained abroad until after the assassination of Henry (1610). On his return he started an intrigue against Marie de Medici, the regent, which resulted in his imprisonment. After his release he decided to adopt a policy of loyalty,

and to this end fought zealously against the Protestants, and became one of Richelieu's most faithful adherents. He was made President of the Council of Regency when Louis XIII. died, 1643, and his second son, Armand, was founder of the house of Conti.

Condé, Louis I. de Bourbon, Prince de (1530-69), fifth son of Charles de Bourbon, Duc of Vendôme, and younger brother of Antoine, King of Navarre. He was the first to bear the famous title, and had a distinguished military career under Marshal de Brissac in Piedmont, at Metz while Charles V. was besieging it, and in



PRINCE DE CONDÉ

(Louis I. de Bourbon)

the Battle of St. Quentin. A supporter of the Huguenots, he was one of the leaders in the conspiracy of Amboise, designed to remove Francis II. from the Guise influence and make him acknowledge the Huguenot faith, and only the death of Francis saved his life. On the accession of Charles IX., Catherine de Medici made him Governor of Picardy. In 1562 he took command of the Huguenot army against the Guises and was captured at Dreux, but released again by the Treaty of Amboise, 1563. When renewed trouble broke out C. was again leader, and after a brilliant fight at the Battle of Jarnac he surrendered, and was treacherously shot.

Condé, Louis II. de Bourbon, Prince de (1621-86), 'the Great Condé,' an eminent and talented Fr. general.

He bore the title of Duc d'Enghien during the lifetime of his father; he defeated the Spaniards at Rocroi in 1643, Mercy at Nordlingen in 1645, and took Dunkirk for the Fr. in 1646. In this last year he succeeded to his father's kingdom and title, and since he had wedded Richelieu's niece in 1641, this accession to his power made him one of the most important personages in the realm. He at first took the side of the Court against the Parliament and the nobles, and brought back the young Louis XIV. to Paris in 1649. He imagined himself ill-treated by Mazarin, however, and put himself at the head of the faction of the Petits Maitres; he was captured and imprisoned by Mazarin in 1650. After a year the union of the Old and New Frondes brought about his release, and he marched upon Paris and fought an indecisive battle in the suburb St. Antoine. Many of his adherents left him, and he joined the Spaniards, who appointed him generalissimo of the Spanish armies. He fought for the Spaniards at Arras in 1654, Valenciennes in 1656, and Cambray in 1657. He was defeated at the Battle of the Dunes by Turenne in 1658, and was only restored to his rank in France by the peace of the Pyrénées in 1659. He was charged with the task of reducing Franche Comté, which then belonged to Spain, to submission, which he succeeded in doing in the short space of three weeks. He afterwards fought the Dutch at Senefin, 1674, defeating the Prince of Orange (afterwards William III. of England), and in the following year drove Montemari out of Alsace. Four years later he retired to Chantilly, and *d.* at Fontainebleau.

Condé, Louis Joseph de Bourbon, Prince de (1736-1818), son of Louis Henry, Duke of Bourbon (1692-1740); he joined the army at the commencement of the Seven Years' War, and distinguished himself by his victory at Johannsburg, 1762. He was for sometime Governor of Burgundy, and when the revolution broke out, commanded the 'army of Condé' for the king, joining the Austrians until the peace of Campo Formio in 1707. He then went to Poland and fought for the Emperor of Russia, afterwards going to Bavaria in the pay of England. In 1800 he retired to England, but returned to France on the restoration of Louis XVIII. He was the author of an *Essai sur la Vie du Grand Condé*, 1798.

Condekerque Branche, a vil. situated on the N. coast of France, in the dept. of Nord. It is 3 m. from Dunkerque. Pop. 600.

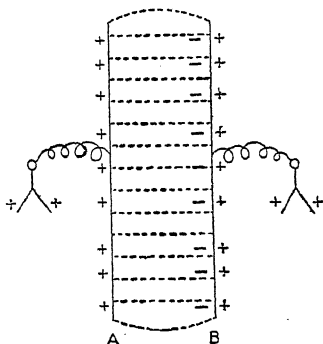
Condell, Henry (1757-1824), an Eng. violinist and composer. He

distinguished himself in the orchestras of the King's Theatre, Drury Lane, and Covent Garden, and composed overtures and incidental music for various plays and operas, including Fawcett's *Enchanted Island*, 1804; Reynold's *Bridal Ring*, 1810; *Love Laughs at Locksmiths*, adapted by Colman, and *Aladdin*.

Condenser, an apparatus for condensing steam or other vapour into the liquid form by introducing cold water into the vapour, or by passing the vapour through tubes surrounded by a current of cold water. See STEAM ENGINE and TURBINES for the various forms of Cs.

Condenser, Electrical. A condenser may be defined as an arrangement by which the capacity of a conductor is artificially increased. It is shown in electrostatics that if Q is the charge of a conductor and V its potential, the ratio $\frac{Q}{V}$ is constant, and is called the capacity, C , of the conductor. Thus $C = \frac{Q}{V}$. Therefore any arrangement which decreases V increases C , and is a condenser.

Explanation of the Action of Condenser.—Consider the simplest case of a condenser, namely, that of two parallel plates. Suppose A and B are two equal, parallel, vertical, metal plates, each of which is connected to an electroscope (see ELECTROSTATICS).



Give A a positive electric charge Q , by connecting it to the terminal of a friction machine. If B is now brought up to A from a distance, the leaves of B, which were closed when B was far from A gradually diverge, whilst those of A gradually close. It can be shown that the charge on the leaves of B is positive. If B is connected to

earth, the leaves of A close still further. If B is now insulated again, B's leaves diverge again with negative electricity. This shows that negative electricity is induced on the side of B near to A, whilst positive electricity is driven to the far side of B, as B is brought up to A.

When A is positively charged, it is given a certain positive potential. When B is insulated and brought up to A, its potential is lower than that of A. Thus the potential of A decreases, and its leaves close somewhat, whilst the potential of B increases and its leaves open. If B is earth connected, its potential is lowered to zero, and the potential of A is lowered, still further by the presence of B, causing A's leaves to close still further. Thus to raise the potential of A to its initial value, it is necessary to give it a further charge. Thus the presence of B condenses the charge on A, if the potential of A is kept constant. The greatest effect is produced when B is earth connected. With this simple apparatus the important fundamental facts concerning condensers can be demonstrated. Thus it can be shown that as B is brought nearer to A, the leaves of A close further still, showing that its potential is decreasing and its capacity increasing. That is, the capacity varies inversely as the distance between the plates. A is called the positive armature of the condenser, B the negative armature, whilst the media between A and B is called the dielectric. If a slab of a good insulator, say sulphur, is placed between A and B, the leaves of A close still further, showing that the capacity of the condenser depends on the dielectric.

Capacity of Plate Condenser.—Suppose B is not earth connected, but that the potentials of A and B are V_1 and V_2 respectively, then $(V_1 - V_2)$ is, by definition, the work necessary to convey unit positive electric charge from B to A (see ELECTRICITY AND MAGNETISM—Electrostatics). Suppose $+Q$ is the charge on A, then practically all the tubes of force (dotted in diagram) starting from A will terminate on B (if B is very near to A). Thus B will have a charge $-Q$ on the side near A. Let 'S' sq. cms. be the area of either A or B. Charge

on A per unit area is $\frac{Q}{S}$. By Coulomb's law (see ELECTROSTATICS) the force in the dielectric between the plates is $\frac{4\pi Q}{S}$, if air is the dielectric. Thus if 'd' cms. is the distance between A and B, the work done in taking the

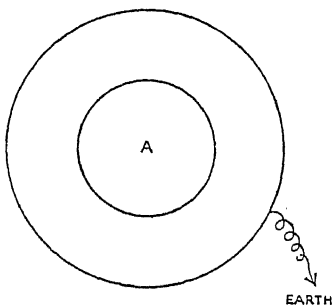
unit charge from B to A is $\frac{4\pi Qd}{S}$. This is thus equal to $V_1 - V_2$.

$$\therefore \frac{V_1 - V_2}{Q} = \frac{4\pi d}{S}$$

It is seen that $\frac{4\pi d}{S}$ is a constant.

The ratio $\frac{Q}{V_1 - V_2}$ is the capacity of the condenser and is thus $\frac{S}{4\pi d}$.

Capacity of Spherical Condenser.—A spherical condenser consists of two concentric spheres, of radii 'a' and 'b,' $b > a$. Suppose that air separates the spheres, and that B, the outer sphere, is connected to earth. Suppose a charge $+Q$ is given to A. Obviously all tubes of force starting from A are radial (by symmetry), and terminate on B. Thus B has a charge $-Q$. The potential of B is zero. The sphere A has no charge inside it. Thus the potential inside it is everywhere the same as that at the surface of A. The



potential at the centre due to sphere A is $+\frac{Q}{a}$, while that due to B is $-\frac{Q}{b}$. Thus the potential at the centre, and therefore the potential of A, is $(\frac{Q}{a} - \frac{Q}{b})$. The capacity of the condenser is $\frac{Q}{V_1 - V_2}$ and V_2 is zero. Therefore the capacity is $\frac{Q}{\frac{Q}{a} - \frac{Q}{b}} = \frac{ab}{b-a}$.

Energy of a Condenser.—The energy of a condenser is $\frac{1}{2} QV$ (see ELECTROSTATICS). Thus the energy of the positive armature of a condenser is $+\frac{1}{2} QV_1$, whilst that of the negative armature is $-\frac{1}{2} QV_2$. Thus the total energy of the condenser is $\frac{1}{2} Q(V_1 - V_2)$, or $\frac{1}{2} \frac{Q^2}{C}$, since $C = Q \div (V_1 - V_2)$.

Specific Inductive Capacity.—Faraday made numerous experiments with a spherical condenser to determine the effect of the dielectric on the capacity. He found that the capacity varied with the dielectric, and he called the ratio of the capacity when the substance was dielectric, to the capacity when air was dielectric, the specific inductive capacity of the substance. It is usually designated by K .

Practical Forms of Condenser.—For purposes of demonstration, the Leyden jar is the most common form of condenser. The invention of the Leyden jar was the result of an accident. In 1746, a physicist, Cuneus, was electrifying water by holding a flask of water in his hand, and allowing a chain which was connected to the conductor of an electric friction machine to dip into the water. On taking the chain out of the water, he received a severe shock. It took him two days to recover from the effects. The news of this shock led to investigation which has resulted in the modern Leyden jar. The Leyden jar consists of a wide-necked bottle, coated both inside and out for about four-fifths the height with tin-foil. The mouth of the bottle is closed with an insulating cork, through which passes a metallic rod, terminating above in a knob, and connected below to the inner coating by a chain. The glass should be of a non-hygroscopic nature, and to ensure its dryness the exposed portions of the glass are covered with shellac varnish, which is less hygroscopic than glass. The two coatings of foil form the armatures of a condenser, whilst the glass is the dielectric. The outer coating is usually earth connected, and a positive charge given to the inner foil by connecting the knob to the conductor of a friction machine.

Leyden Jars in Series.—This is done by connecting all the inner coatings together, and connecting the outer coatings to earth. If C_1, C_2 , etc., are the capacities of the jars, and C that of the system, $C = C_1 + C_2 + \dots$

Leyden Jars in Cascade or Parallel.—This is effected by insulating the outer coatings by placing the jars on slabs of sulphur and connecting the inner coating of one jar to the outer coating of the next, and so on. With the same notation as above, in this case we have

$$\frac{1}{C} = \frac{1}{C_1} + \frac{1}{C_2} + \dots$$

Seat of Electric Charge.—Benjamin Franklin showed that the seat of the electric charge is the dielectric. He formed a Leyden jar which could be taken apart. The inner coating can be lifted out of the glass, and the

glass out of the outer coating, by means of insulated hooks. He charged the jar in the usual way, and then took it apart and tested the parts separately. He found that the glass was the only part charged, showing that the seat of the charge is the surface of the dielectric.

A form of condenser for accurate work was devised by Lord Kelvin. It consists of a number of sheets of tin foil insulated from each other by sheets of mica or paraffin paper. The odd sheets of foil, i.e. the first, third, fifth, etc., sheets are connected together, and to one terminal of the condenser. The other sheets are connected together, and to the other terminal of the condenser. During recent years the electrical C. has made great strides owing to the popularity of wireless and the growth of cheap electricity. In wireless work the condensers used are of a very small capacity, ranging from 0.001 to 2 mfd. The small fixed C. are made of small plates of brass foil about $\frac{1}{16}$ in. thick, separated by thin mica strips; the larger C. use waxed-paper as the dielectric, and are thus more bulky relatively than the mica C. Variable-air C. are also used in wireless work, being used chiefly to tune the aerial circuit. They are composed of aluminium vanes about $\frac{1}{4}$ in., separated by about the thickness of the vane. The vanes are mounted alternately on a fixed and a moving spindle, so that the area of one set overlapping the other can be varied from nil to full. The vanes were originally hemispherical in shape, but with this type the capacity did not vary in direct proportion to the overlap, and this was remedied by shaping the vanes so that the capacity was proportional to the square of the angle of rotation of the knob of the C. In the modern power-house the improvement of the power factor is a big problem for the engineer, and the C. affords him most material assistance. The C. are usually connected parallel with one another and parallel with the applied load, so that the leading current taken by them will balance, totally or partially, the lagging current taken by the load. In overhead transmission C. are used to protect switchgear and transformers from lightning. When the overhead conductor is struck the resultant surge of high voltage which flows along the line is simply absorbed in the C. at the end of the line.

Conder, Claude Reignier (1843–1910), a colonel, Royal Engineers, and explorer, b. at Cheltenham. He studied in Italy, and at the University College, London, and the

Royal Military Academy, Woolwich. He became head of the survey party at Nablus, Samaria (1872), and took charge of the survey of Palestine (1872-78 and 1881-82), his *Memoirs* of which were brought out in seven volumes by the Palestine Exploration Fund in 1880. This work is of great value to the serious student of the O.T. and N.T. history. In 1882 he was attached to the Egyptian expedition under Garnet Wolseley, and took part in the Battles of Kassassin and Tel-el-Kebir. He worked on the ordnance survey of Plymouth (1887-94) and in the W. of Ireland till 1905. C. published many scholarly works on archaeological and philological subjects. These include: *Tent Work in Palestine*, 1878; *Syrian Stone Lore*, 1886; *Altaic Hieroglyphs and Hittite Inscriptions*, 1887; *The Tell Amarna Tablets*, 1893; *The First Bible*, 1902; and *The City of Jerusalem*, 1909.

Condé-Smendon, in the arrondissement of Constantine, Algiers. It is noted for its wines. Pop. 13,000.

Condé-sur-Escaut, a tn. of France, in the dept. of Nord, situated at the confluence of the Schelde and Hayne, 8 m. N. of Valenciennes. The princes of Condé took their name from this place. Pop. 6710.

Condé-sur-Noireau, a tn. of France, in the dept. of Calvados, at the junction of the Noireau and Drouance, 33 m. S.S.W. of Caen. Pop. 4940.

Condillac, Etienne Bonnot de (1715-80), a Fr. philosopher, b. at Grenoble. He spent practically all his life on his estate of Flux, near Beaugency, engaged in philosophical studies, and d. there. His first notable work appeared in 1746, the *Essai sur l'Origine des Connaissances Humaines*. This work, in conjunction with his *Traité des Systèmes* (1749), outlines his theory. He explained almost everything by the law of association of ideas, and whilst allied to the principles of Locke, he disagrees with those of Descartes, Spinoza, Malebranche, etc. Sensation is, according to him, the only possible source of knowledge, and all intellectual processes may be traced back to sensation. The clearness and perspicacity of his writings obtained for him the post of instructor to the infant Duke of Parma, the nephew of Louis XV. He wrote for him the *Cours Complet d'Instruction*, which includes a grammar, elementary books on the arts of writing, reasoning, and thinking, and a history. His teachings exercised great influence in the eighteenth century, and were severely criticised in the early part of the nineteenth century. It was shown by Taine, however, that the

modern trend of psychological and physiological research goes to prove that the ideas of C. are well founded. His works include, besides those already mentioned, *Traité des Sensations*, 1754; *Traité des Ammaux*, 1755; *Le Commerce et la Gouvernement Considérés Relativement l'un à l'autre*, etc. See Dewaule's *Condillac*.

Condiments (Lat. *condire*, to season, put together), any substances of pronounced flavour used as seasoning agents, to give relish to food or stimulate the appetite. Many C. are essential. Among the chief are salt, vinegar, olive-oil, sugar, and aromatic or pungent C., such as spices, mustard, pickles, pepper, and ginger.

Condition. In the law of contract (*q.v.*), the non-fulfilment of a C. *precedent* by one of the parties disentitles him from enforcing the contract against the other party. By a C. precedent is meant some act to be performed or some contingency to be fulfilled or some time to elapse before one party can be called on to carry out his part of the contract. For example, if A agrees in writing to sell his business to B, and they verbally agree that the transfer shall be subject to the consent of A's partner, A cannot be forced to sell until A's partner does consent. Cs. may also be *concurrent*, i.e. each party must perform his agreement at the same time. For example, A agrees to buy a slate quarry from B, and B agrees to purchase all slate from A: A cannot sue B for not taking slate unless he can show that he was ready to buy the quarry or had bought it. Sometimes the parties to a contract introduce a provision that the occurrence of an event shall discharge them mutually from further liabilities, *e.g.* that the happening of an 'excepted risk' of a charter-party shall discharge the ship-owner from liability for failure to carry a cargo. Such provision is known as a C. *subsequent*. It is entirely a matter of construction, whether representations or alleged verbal stipulations in any particular can amount to Cs. Not every representation made prior to a contract can be called a C. Whether it be a C. depends on whether the court comes to the conclusion that such statement or representation was the *condition on which the other party contracted*. Cs. must be distinguished from warranties. A warranty is part of the contract itself, whereas a C. is something collateral to it. A breach of warranty only entitles the injured party to damages; the breach of a C. entitles the injured party to repudiate altogether. But the Sale of Goods Act, 1893, expressly provides

that in certain cases Cs. shall be implied in a sale, which, if unfulfilled, shall entitle the buyer to repudiate. (as to these see SALE.)

Conditional Immortality, known in America as Annihilationism, is the doctrine that the immortality of the soul is not inherent in the race, but depends on faith and union with Jesus Christ. Its adherents maintain that the Bible invariably speaks of immortality as something to be hoped for, and as a future gift of God. They state that this gift is given by the assumption of a spiritual body after the second coming of Christ. They are thus opposed to the doctrine of Universalism, but not less so to that of the eternal misery of the wicked. These, they say, will undergo the great judgment and then pass through a period of punishment which will end in annihilation. Everlasting destruction or death is thus considered as the antithesis of the everlasting bliss or life of the blessed. The best exposition of these tenets is given by Edward White in *The Life of Christ* (London), 1875, a somewhat different view being contained in S. D. McConnell's *Evolution of Immortality* (New York), 1901. In 1878 the Conditional Immortality Mission was founded to carry on propaganda work in the British Isles.

Conditioned Reflex, a term introduced by the celebrated Russian physiologist I. P. Pavlov, to describe certain nervous behaviour the investigation of which has thrown much light upon the activities of the brain. Pavlov noticed that the flow of saliva, for instance, which is normally caused by the taste of food in the mouth, can equally well be caused by the mere sight of food, as indeed is common knowledge; we often say the sight of such and such a luscious object 'makes our mouth water,' and the statement is literally true. The flow of saliva at the sight of food is a *conditioned reflex*. Pavlov showed by experiment that this simple instance could be paralleled in numerous interesting ways. Thus he found that flow of saliva could be produced in a dog by the mere ringing of a bell, the ringing of which had for several previous occasions been followed shortly afterwards by the appearance of food. The importance of a study of conditioned reflexes is that it enables us to understand better the real nature of intelligence. Many actions hitherto ascribed to 'intelligence' proving to be the results of conditioned reflexes. As an aid to the analysis of behaviour, the artificially produced conditioned reflex is of the utmost value, and it is largely employed in experimental psychology.

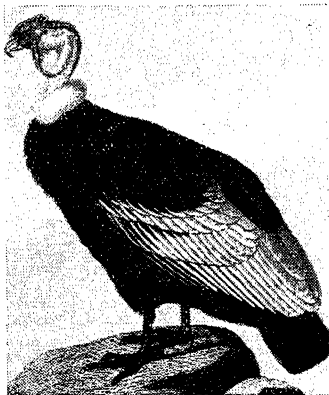
See I. P. Pavlov, *Conditioned Reflexes*, translated by Aurep, 1927.

Condom, a tn. of France, in the dept. of Gers, 25 m. N.N.W. of Auch, situated on a height above the Baise. Formerly it was the capital of the large district Pays-de-Condoinois, and was an episcopal see, of which Bossuet was bishop. There is a good trade in brandy, wine, grain, and flour. Pop. 6640.

Condonation, in law, the conditional forgiveness by one spouse of an offence which the other spouse has committed in breach of the marriage vow. The condition is that the party if forgiven will not repeat the offence. C. may be either expressed in writing or implied by conduct. It is a complete bar to proceedings for divorce so long as the condition remains unbroken.

Condor, a British gunboat, which was commanded by Lord Charles Beresford (then Captain) at the bombardment of Alexandria in 1882. Another *Condor* of the royal navy went down with all hands near Honolulu in 1901.

Condor (from Peruvian *cuntur*), *Sarcorhamphus gryphus*, a large S. American vulture, found particularly in the region of the Andes, especially in the higher regions, where



A CONDOR

they make their nests at a height of from 10,000 to 15,000 ft. The general colour is black, and in both sexes there is round the lower part of the neck a white ruff of feathers. Above this the head and neck are bare. The C. feeds on flesh, to obtain which, in default of carrion, he will attack small or aged animals.

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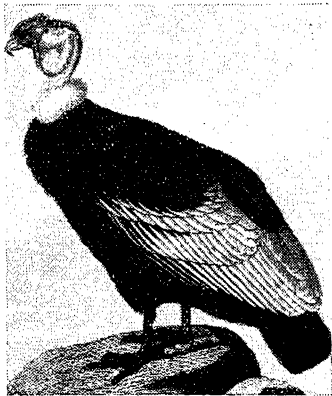
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Condorcet, Marie Jean Antoine Nicolas Caritat, Marquis de (1743-94), an eminent Fr. philosophical and mathematical writer, b. at Ribemont, near St. Quentin, of a very anct. family. He was educated at the College of Navarre, and distinguished himself especially in mathematics. He wrote in 1764 his *Essai sur le Calcul Intégral*, and in 1767 his *Mémoire sur le problème des Trois Points*. These works, afterwards published together under the title of *Essais d'Analyse*, and dedicated to the Academy of Sciences, procured for him in 1769 the distinction of a seat in that institution. The facility with which C. treated the most difficult mathematical studies was remarkable, and until 1792 his output was large, as, in addition to the works already mentioned, he contributed frequently to the transactions of the learned societies of St. Petersburg, Berlin, Bologna, Turin, and Paris. His *Eloges des Académiciens morts avant 1699* (1773) was immensely popular, and gained for him in 1773 the honour of being made perpetual secretary to the Academy of Sciences. He won the prize offered by the Academy of Berlin in 1777 by his theory of comets, and owing to his acquaintance with D'Alembert he wrote many articles for the *Encyclopédie*. He was not elected a member of the Fr. Academy until 1782, owing to the aversion which was felt for him by Maurepas. When the first Fr. revolution broke out he sided with the people, and was elected deputy to the legislative assembly of Paris. He was soon appointed secretary, and in Feb. 1792 was made president. The legislative assembly was merged in the national convention in Sept. 1792, and C. was there in sympathy as a rule with the Girondist party. He was in favour of the punishment of Louis, but not of his death, as he believed in the abolition of capital punishment. On the fall of the Girondist party he attacked the new constitution, and was denounced at the bar on July 8, and later accused of being an accomplice of Brissot. He was protected by Madame Verney for eight months, but learning that she was in danger of death for harbouring him, he fled from Paris, but was recognised and arrested at Clamat. He was found dead in his cell, having probably taken poison, which he always carried about with him. His best known work was written whilst he was with Madame Verney, *Esquisse d'un Tableau Historique des Progrès de l'Esprit Humain*. This book is full of enthusiasm for liberty, and maintains the perfect equality of the sexes and

the inherent possibilities of mankind. C. was a free-thinker, and had a high standard of virtue. In both his public and private life he was blameless; his application of the problems of philosophy to mundane affairs and the betterment of social conditions is the distinguishing feature of his polemical works.

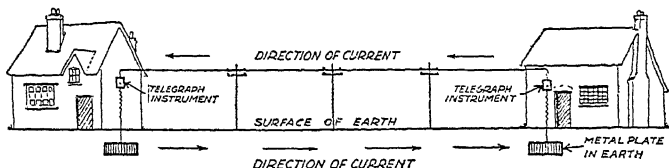
Condottieri (It. leaders), the name given to the captains of those bands of soldiers which overran Italy and held the military power there in the fifteenth century. They were composed of professional fighting-men who would serve under any one who held out prospects of plunder, the idle riff-raff of the country, and criminals fleeing from justice, with a proportion of men who had lost their all in the wars. Naturally with such ingredients the chief objective of the armies was always plunder; it was immaterial to the combatants which of the contending Govs. gained the victory. Though most of the C. of this period were simply glorified brigands, one or two of them were faithful to one party, notably the Englishman, John Hawkwood, who was always on the side of the Guelphs. After some time the C. became heads of organised bodies of men, and several attained much power and position. Alberic de Barbiana was a powerful influence, and Attendolo Sforza made himself king of Milan, and handed down his sovereignty to his descendants. The decadence of the C. followed, however, and, as might have been expected from the composition of the armies, many so-called battles were fought with hardly any loss of life. At the Battle of Zagonara (1423), only three lives were lost, and at those of Castracaro and Molinella none at all.

Condrieu, a small tn. of France, in the dept. of Rhone, situated on the R. Rhone, 20 m. S. of Lyon. It is noted for its wine. Pop. 2180.

Conduction, one of those methods by which heat or electricity is transmitted through matter. The laws governing the transmission of them are similar. For the flow of both heat and electricity depends on a difference in the first case of temperature (*q.v.*), and in the second case of potential (*q.v.*). Further, all other things being equal, the greater the difference in temperature or potential, the greater the flow of heat or electricity. It is further found that good conductors of heat are good conductors of electricity. Now the conductivity of a substance of heat or of electricity can be determined (*see* HEAT AND ELECTRICITY), and it is found that, ranged in their order of conductivity, and starting with the best, some of the

substances known as conductors or non-conductors could be ranged as follows: silver, copper, gold, brass, zinc, platinum, iron, tin, lead, mercury, German silver, graphite, saline solution of sea water, pure water, alcohol, wood, ice, lime, chalk, porcelain, wool, hair, silk, glass, wax, sulphur, resin, amber, gutta serena, shellac, paraffin, ebonite, air and gases. This conductivity, however, is affected to a great extent, both for heat and electricity, by physical conditions, such as pressure, temperature, moisture, strain, etc. Thus glass covered with a thin film of moisture, as it is in damp weather, loses its insulating power. Therefore glass used in electrostatic experiments as an insulator has to be carefully dried or coated with shellac varnish, on which moisture does not so readily settle. Again, the conducting power of metals decreases with rise in tem-

not escape or become deposited, since on reaching the surface it loses its charge and is driven back (see ELECTRON). Owing to the increasing use of alternating current for the general distribution of electricity, many facts have recently come to light which tend to show how different alternating is from direct current. One of these is the fact that conductors carrying alternating current have to be larger than those carrying direct current for the same current carrying capacity. This is due to what is known as the 'skin-effect' of alternating currents. When passing along a conductor, alternating currents are denser nearer to the surface than at the centre, the magnetic field which is set up in the conductor by the current forcing the current to the surface of the wire. Current will not flow at a much greater depth than one-quarter of an inch when it is



THE USE OF EARTH AS A CONDUCTOR

perature, whereas some bad conductors at ordinary temperatures, such as glass and wax, conduct much better at higher temperatures. In the case of conductors of electricity which are liquid, the term generally used is *electrolyte*, and their action rests on an entirely different basis from that of metallic conductors. It will be sufficient to state here that the electricity in electrolytes is supposed to be carried along on wires. It is supposed that some of the molecules in the solution are in a state of dissociation and that one class is moving in one direction charged with positive electricity, and the other class in the opposite direction charged with negative electricity. They are moving towards the electrodes to which they give up their charges and are deposited (see ELECTROLYSIS). Now this transporting of matter does not happen in the case of the C. of electricity along metals. However, it is assumed that on charging with electricity the substance breaks up into a comparatively large mass positively charged and a small part negatively charged. This small part is that which carries the current along. They do

working at 50 cycles, which is the general frequency for alternating current in England. Another feature is that alternating-current circuit breakers have to be designed for heavier work than the similar parts of a direct-current circuit breaker.

When conducting current of a voltage of 100,000 volts and over, as is now being done on the Eng. distribution system, losses are found to occur along the surface of the conductors, known as 'corona losses,' because the current radiating from the wire forms a corona round it. To counteract these losses, the conductor is made larger; on a million-volt apparatus the conductors have to be 2 ft. in diameter in order to prevent these discharges from the surface. The current of electricity through an electric arc depends on different principles from current through gases and vacuum tubes (q.v.). In order to obtain arc current, at least one electrode must be hot; in the arc lamp both are hot, but in the mercury vapour lamp the anode is comparatively cool. The current of electricity is generated by means of the vapour of which the cathode

is composed, but to vaporise the mercury the anode and cathode must first be brought together in order to cause a heavy current to pass, which heats the mercury and vaporises it. They are then moved apart, and the arc is thus formed. Electrical energy is also transmitted by wireless, sufficient to operate relays and switches over vast distances; in 1930 Signor Marconi sending out wireless impulses from his yacht in the Mediterranean Sea switched on the electric power system of a large city in Australia by means of suitable relays and amplifying circuits. See the various articles mentioned in this article, and for C. in gases see VACUUM TUBES.

Conductor, in music, the director of a chorus or orchestra. The practice was first introduced into England by Spohr at a philharmonic concert in London in 1820. Previously, the first violinist set the time, while the C., seated at a pianoforte or harpsichord, accompanied the performers with a few leading chords. An orchestra is now invariably led by a C., who faces the performers and beats time with a baton. A good C. must have first studied his music so as to be thoroughly familiar with the score. He must realise the possibilities of all the voices and instruments under his direction and be able to bring out the best that is in them. Above all, he must be a good musician and have interpretative talent. The C. has to rehearse his performers beforehand, separately and together, so that they become familiar with his methods and his intentions, and at public performances can carry out his instructions by watching his eyes and his movements. Many great musicians, such as Haydn, Mozart, Beethoven, Wagner, etc., have conducted their own work, but creative genius is not essential to a great C. The idea of interpretative conducting originated in the first half of the eighteenth century, probably with Stamitz (1719-61). Among famous Cs. may be named Liszt, Berlioz, Jullien, Von Bülow, Costa, Richter, Paur, Sucher, Hallé, Strauss, Ysaye, Sousa, Glover, Wood, Hamilton Hartly, Dan Godfrey and Beecham. Consult Wagner, *Ueber das Dirigieren*, vol. viii. 1888; Henderson, *The Orchestra and Orchestral Music*, 1899.

Condurango, or **Cundurango**, the name applied to several species of Asclepiadaceæ found in S. America, but especially to *Marsdenia cundurango*. The bark yields a drug used as a remedy for cancer and for snake-bites.

Condyle, a rounded eminence in a bone which serves to articulate it with another bone. Such structures

occur in the femur, the humerus, the jaw, and the occipital bone.

Condyloma (plur. condylomata), a wart-like growth or tumour near the genital organs or the anus. It may be pointed, or, in the case of syphilitic C., broad, flat, and moist.

Condylura macroura, a species and genus of the New World moles, is an insectivorous mammal of the family Talpidae. The animal is about 7 in. long, 2½ in. being taken up by the tail, whence the name long-tailed condylure; at the end of the snout there is a curious radiating structure from which the creature is sometimes called the star-nosed mole. The fur is a deep lustrous brown above, lighter beneath; in habit the condylure is a burrowing animal, and its diet consists of worms, insects, and their larvae.

Cone, a surface generated by a straight line which passes through a fixed point and is intercepted by the circumference of a fixed curve. The moving straight line is called the *generator*, the fixed point the *vertex*, and the fixed curve the *directrix*. The term is also applied to the space enclosed by the curved surface and the fixed curve, and often refers to a right circular C., which is defined by Euclid as the solid figure formed by the revolution of a right-angled triangle about one of the sides containing the right angle. The side about which the triangle revolves becomes the *axis* of the C., and its length becomes the *altitude*; the circle described by the other side containing the right angle becomes the *base*. An oblique C. is one in which the base is not at right angles to the axis. Some of the characteristics of a conical surface are: All planes tangential to the curved surface pass through the vertex; the curved surface is 'developable,' that is, it can be unrolled to form a plane, or conversely, a plane surface can be wrapped round a C. without rupture or wrinkling. The curved surface when unrolled becomes a sector of a circle whose radius is the slant height of the C. Its area is one half the slant base multiplied by the perimeter of the base. The volume of a C. is one-third that of a cylinder with the same base and height; therefore it may be measured by multiplying one-third of the height by the area of the base, the area of the base being πr^2 , where $\pi = 3.14159 \dots$ and r = the radius of the base. Similar Cs. are those in which the axes and the diameters of the bases are proportional. A truncated C. is formed when the upper part containing the vertex is cut away by a plane parallel to the base. In machinery the term C. is applied to a truncated surface tending to converge to a point.

Conegliano, a tn. of N. Italy in the prov. of Treviso, 35 m. N. of Venice. It has a fine cathedral, containing an altar piece by Cima (1492), the ruins of a castle, and a loggia with sculptural monuments of Dante, Victor Emmanuel, and Garibaldi. Pop. 15,800.

Coney (Lat. *cuniculus*; Gk. *κύνελος*, a rabbit), a name for rabbit, which is not now commonly used. The word occurs in the Bible as a translation of Hebrew *shaphen*, which is probably the *Hyrax syriacus*.

Coney Island forms part of the bor. of Brooklyn, New York City. It stands at the entrance of New York harbour, on the S. shore of Long Island. It is 5 m. long, its greatest breadth being three-quarters of a mile. It has a fine beach, and is a very popular summer resort. There is a continual service of steamboats between it and New York, which is 11 m. distant, and it is reached by many electric and steam railroads. It is divided into several districts—West Brighton, Brighton, Sea Gate, and Manhattan Beach, the cheaper amusements being at West Brighton. There are several bathing pavilions, and a tubular iron pier, 1000 ft. long.

Confarreation was one of the three Rom. forms of marriage. It was the only one which was invested with the sanctity of a religious performance; an offering was given to Jupiter, and bread made of spelt (*panis farreus*) was eaten. The priest spoke certain sacred words over the couple in the presence of ten witnesses. C. is supposed to have been confined to the patricians, and certain offices in the state could only be held by persons whose parents had been so married.

Confectionery (Lat. *confectio*, a preparation, from *conficere*, to make up), the branch of cooking which comprises preparations of cakes and sweetmeats from sugar. Before the nineteenth century, sweets and candies were the monopoly of apothecaries, who made them to hide the taste of their drugs. Sweets were at first made by hand, but by the middle of the nineteenth century machinery was introduced for many of the operations, such as mixing and rolling. There are many well-known firms of chocolate makers in England, but France is recognised as supreme in this department. The best known productions of American sweet manufacture are molasses, candy, and sugar plums. The cheaper kind of sweets are often adulterated with kaolin, terra alba, etc., in order to increase the weight or to swell out the substance. C. made of flour, such as sweet pastries and fancy cakes, are not as a rule made on a large scale by

firms, but are made by bakers at local shops. There are many books of recipes for pastry and sweet C., such as Jacquot's *Chocolate and Confectionery Manufacture*, 1910.

Confederate States, the name adopted by those S. states of the N. American Union which seceded and formed an independent union at the end of 1860 and beginning of 1861. The name stressed the profounder cause of the American Civil War, which was to see their rise and extinction. It was for the vindication of 'state rights' against the Federal Gov. of the North (see CONFEDERATION) that the S. states seceded, though the vital issue was the question of slavery. The eleven C. S. were, in order of secession, S. Carolina, Mississippi, Florida, Alabama, Georgia, Louisiana, Texas, Virginia, Arkansas, Tennessee, N. Carolina, the first in Dec. 1860, the last in May 1861. The President was Jefferson Davis (*q.v.*); the Vice-President, Alexander H. Stephens; and the Secretary of State, Judah P. Benjamin. The seat of the Gov. was at Richmond. The constitution, adopted on March 18, 1861, based on the U.S.A. constitution, varied in freer independence to the separate states, in the right of the Cabinet to seats in the two Houses of Congress, in the prohibition of protective tariffs or bounties, and in the avowed upholding of the institution of slavery and rights of property in slaves. The inherent weakness of the C. S. lay in their numbers, about half of those of the N. states, in railways and in finance, and, moreover, they were crippled by the overwhelming naval superiority of their antagonists. The brilliant military capacity of their generals alone kept the war going as long as it did. See UNITED STATES (*History*).

Confederation, a political term, contrasted or opposed to federation, for a form of union of individual states or societies. It insists on the individual independence of each state or society in a common union, while federation insists on the supremacy of the common Gov. Thus the British empire, as at present constituted, is a C., as was the Ger. confederation established at the Congress of Vienna, 1815. The distinction is well illustrated by the Ger. terms *Bundestaat*, a bond of states, and *Staatesbund*, a states bond. The American Civil War was fought, not only on the slavery question, but on the profounder question whether the Union should be that of confederate or federated states. An apt example may be taken from ordinary leagues or societies which, as formed for a common purpose, may be regarded as

'confederate' so long as they are answerable only to themselves for the methods they adopt for attaining that purpose.

Confederation of the Rhine, the name given to the union of the states which seceded from the Ger. empire in 1806. In that year the first Ger. elector, arch-chancellor of the empire, announced to the diet that he had appointed Cardinal Fesch, an uncle of Napoleon Bonaparte, as his helper and successor. This act was not in accordance with the constitution of the empire, and accordingly sixteen Ger. princes signed an act of confederation at Paris on July 12, 1806, by which they formally separated from the emperor and the empire. They invited the other states to join their confederation. Napoleon adopted the title of Protector of the C. of the R., and instructed his ambassador to announce that his rules would not acknowledge a Ger. empire. Many princes and counts were subjected to the princes of the confederation by mediation. In 1806 the Elector of Würzburg, the Elector of Saxony, and the five Saxon dukes joined the confederation. By the year 1808 many other princes and rulers were enrolled, including the two princes of Schwarzburg, the kingdom of Westphalia, and the Dukes of Mecklenburg-Strelitz and Mecklenburg-Schwerin. The confederacy at the time of its greatest power extended over a space of 125,000 sq. m., with 14,600,000 inhabitants; after Napoleon's Russian campaign (1812) the power of the confederation declined, and the whole structure fell to pieces.

Conference, in English parliamentary procedure, the meeting which is sometimes held when the two Houses of Parliament disagree over a Bill. Delegates are chosen from each House to discuss the provisions of the Bill with a view to reconciliation. The House which has possession of the Bill at the time must be the one to propose a C., and the subjects thereof must be stated; the place and time of the C. are always determined by the House of Lords. The delegates, who are called managers, usually merely present the reasons for the course of action which each House proposes to take; these reasons have been formerly prepared by a committee, and no other speeches are delivered. A free C. is one at which the managers are allowed to influence the other side by speeches of their own. Such a C. is only held after two ordinary Cs.

Confession, or more specifically **Auricular Confession**, is the disclosure of sins to a priest of the church

for the purpose of obtaining absolution. The early practice ordained by the Catholic Church was a public C. of any deadly or mortal sins; these were murder, idolatry, and adultery. In the time of Pope Leo I. (440-461) secret C. was substituted for public C., and the list of mortal sins was, in a letter from Pope Leo to the bishops of Apulia, extended so as to include all crimes which under the Rom. law were punishable by death, exile, or severe corporal punishment. By the 4th General Lateran Council of 1215 it was laid down that it was the duty of every faithful member of the Church who had reached years of discretion to confess his or her sins to the priest at least once a year. This is still binding upon Rom. Catholics. The great difference between the anct. and the modern C. is that formerly only 'great' sins were to be confessed, whereas it was laid down by the Council of Trent that all sins were mortal, and to be confessed, which separate the soul from God, even if sins of thought only. C. is practised by the Rom. Catholic, the Gk., and most Oriental churches, and also by a small Anglican section.

Confession, in law. If the accused at his trial volunteers an unqualified C., that is conclusive evidence against him, but in trials on a capital charge he is generally advised to withdraw such a C. and plead not guilty. A C. made elsewhere than before a judge or on summary proceedings before justices may be conclusive, but is only admissible in evidence where proved to have been made freely and voluntarily; and a C. is not free and voluntary if made as a result of some improper threat or inducement of a temporal nature held out by a person in authority, such as a committing magistrate, a police constable, or the prosecutor. The accused's master would not be a person in authority unless the offence was committed against him. A C. following on a statement by a person in authority to the accused that he need say nothing to incriminate himself, but that anything he might say would be used against him is admissible in evidence. A sacramental C. to a priest would probably be privileged from disclosure.

Confessional, a place in the Rom. Catholic churches where the priest sits to hear the confession of penitents. As a rule Cs. are not part of the church structure, but are movable wooden boxes or stalls, entered by means of a door or curtain and having on either side gratings or openings beneath which there are steps for the penitent to kneel upon,

the object being to keep the penitent in view of the public, the priest remaining hidden. The term was originally applied to the burial-places of martyrs or 'confessors' (one who confesses Christ), the present meaning dating from the sixteenth century. In the Middle Ages very strict rules were enforced with regard to the C., scandals having arisen, and in many places confessions were heard in the chancel of the church. Cs. were condemned in 1900, when the case of *Davis v. Hinde* (vicar of the Annunciation at Brighton) was tried in the consistory court of Chichester before Dr. Tristram. See C. Y. Sturge, *Points of Church Law*, p. 137, London, 1907.

Confession and Avoidance, in the language of pleading, means an *admission* by one party of the facts alleged against him by the other party, coupled with counter-allegations of fresh facts going to show either some justification or excuse, or a discharge or release, so as to *avoid* the legal effect of the admission. A plea in C. and A. may be used either in the defence to a statement of claim or in the plaintiff's reply to a counterclaim. A party pleading in C. and A. is not thereby prevented from putting in a separate plea called a *traverse* denying the facts confessed.

Confession of Augsburg, see AUGSBURG, CONFESSION OF; CONFESSIONS OF FAITH.

Confessions of Faith, reasoned statements of the religious beliefs and doctrines of a particular church or body. The anct. Christian C. of F. are more usually called 'creeds,' under which heading they are treated. Modern confessions begin with the Reformation, when the leading Protestant reforming bodies formulated their doctrines and beliefs. The first of these is the 'Confession of Augsburg,' 1530, drawn up by Melancthon and revised by Luther, who desired to define his position not only towards the Romanists, but also towards the followers of Zwingli. This was presented to Charles V., who had summoned the Diet of Augsburg to offer a fair hearing to all the religious parties of the empire. It expounded in plain teaching the doctrine of God and of the Son of God; of original sin and of justification; it also dealt with the marriage of the clergy, invocation of saints, the celebration of the Mass, etc. It was originally intended as a statement of belief for Saxony only, but was agreed to and signed by a number of other Protestant cities and princes. In its articles it attempted to show that it differed in its statements from current doctrines only so far as

it intended to maintain the original purity and teaching of the early Christian Church. Among other things it rejected 'Transubstantiation.' An answer to the confession from the Rom. Church brought Melancthon's 'Apology,' which was presented to the emperor but not received. Both the confession and apology were published in 1531. The articles of Schmalkalden were drawn up by Luther in 1536, the 'Confession of Württemberg' in 1552, and the 'Formula of Concord' in 1580; together with the Augsburg Confession they formed the body of the Lutheran C. of F. A separate confession, Zwinglian in tendency, was presented at Augsburg by Strassburg, Constance, Lindau, and Memmingen, the 'Confessio Tetrapolitana'; but the Zwinglian position was more clearly defined by the 'Confession of Basel,' 1534, and the 'First Helvetic Confession,' 1536. Calvinism was formulated in 1539 by the 'Gallican Confession,' presented to Francis II. and Charles IX. The 'Second Helvetic Confession,' strongly Calvinistic, revised in 1564, was accepted widely, in Switzerland, Hungary, France, and Scotland, as an authoritative statement of the doctrines of the Reformed churches. In England, Henry VIII. held a convocation in 1536, at which ten articles were drawn up aiming at a compromise between the old and new theology, and attempting a basis for Christian unity. In 1538 a conference was held at Lambeth with envoys from the Lutherans; thirteen articles were formulated, but the Catholic reaction followed with the Statute of the Six Articles, 1539. In 1549 Crammer required all preachers to subscribe to the 'Articles of Religion,' chiefly drawn up by himself. In 1552 they were revised, and as the Forty-two Articles held the ground till the revision as the Thirty-nine Articles of the Church of England, 1563, by Archbishop Parker and Guest, Bishop of Rochester; the final revision was in 1571. In 1648 the 'Westminster Confession,' strongly Calvinistic, with predestination as its main characteristic, was drawn up. The clergy of the English Church withdrew, and the Independents took little share in it. It was Presbyterian throughout. It was sanctioned by the Scottish parliament in 1649, and enforced throughout the United Kingdom. The Baptists issued a 'Vindication of the Truth' as a formula of their teaching, they having been excluded from the conference which drew up the Westminster Confession. The latter, with the Larger and Shorter Catechisms, has, with modifications, remained the confession of English-

speaking Presbyterians (see PRESBYTERIANISM, and SCOTLAND, CHURCH OF). In 1675 Robert Barclay issued a statement or 'Apology' embodying the faith of the Society of Friends. In 1833 the Congregational Union published a 'Confession' which was prepared by Dr. George Redford, not as a confession in the strict sense, but as embodying general principles. The Orthodox Gk. Church, besides the Nicene Creed and the Athanasian Creed (minus the 'filioque' clause), has a confession drawn up in 1640, and a catechism of 1839. The Rom. Catholic Church formulated its doctrines in the decrees of the Council of Trent, finally codified in the twelve articles of Pius IV.: additions were made in 1854 and 1870 of the dogmas of the Immaculate Conception and Papal Infallibility.

Confidentiality, in law, or Privileged Communications. There are necessarily many occasions on which one person may freely make statements to another without being in danger that the law will compel him to disclose the nature of the communication. In law such statements enjoy a *qualified* privilege, the privilege being in most cases qualified by proof of express malice or ill-will. As a rule the privilege arises either from the existence of some common interest (generally pecuniary) between the person making the statement and the person to whom it is made, or by reason of some moral, social, or legal obligation. A moral or social duty has been judicially described as one which is recognised by Eng. people of ordinary intelligence and moral principle. Confidential reports to an official superior, answers to confidential inquiries in the ordinary course of business, as by one banker to another respecting the financial credit of a customer, and statements as to the character of a servant are common examples of such duties. Communications between husband and wife are always privileged. Communications made in self-protection are equally privileged, e.g. a warning given by a master to his workmen not to associate with a former fellow-workman dismissed for dishonesty. Communications as to affairs of state or official communications between public officers on public affairs cannot be disclosed without the consent of the head of the department concerned. The C. of communications with legal advisers extends to all statements or documents concerning matters made the subject of professional intercourse; but communications made in furtherance of a common unlawful design are not privileged. The compulsory

disclosure or discovery of documents after action commenced is no real exception to the rule of C., such discovery being based on the principle that if the party makes the documents part of his case they must come out sooner or later; and their purport ought, in ordinary fairness, to be divulged to the other party, that he may know what case he has to meet. Medical men may be compelled to disclose communications made to them even though imparted in professional confidence; and the rule of privilege probably does not extend to communications made to clergymen; but judges have evinced a disinclination to enforce disclosure. In this latter respect Eng. law differs from that of Rom. Catholic countries and the U.S.A. In Scots law confessions made by a prisoner to obtain spiritual advice and comfort are, but confidential communications to clergymen in the ordinary course of their duty are not, privileged. A broad distinction must be noted between statements made in answer to confidential inquiries and those merely volunteered. The latter would only be protected if it were the duty of the person making the statement to volunteer the information contained in it: for the law does not protect idle gossip. Generally it may be said that where a confidential relationship exists, e.g. as between master and servant, brother and sister, employer and employee, or perhaps intimate friends, there is a mutual duty to volunteer information on anything which each of them ought to know. But where there is no confidential relationship volunteered statements are not often privileged.

Confirmation (Lat. *confirmo*, to strengthen), a ceremony for the completion of baptism, and consists in the laying-on of hands by a bishop and the invocation of the Holy Ghost as a comforter and strengthener. There is some difference of opinion among the churches as to the age at which it is to be administered, and as to whether it constitutes a sacrament or not. In the Rom. Catholic Church it is administered not later than seven years after baptism; in the Lutheran Church from thirteen to sixteen years after, and in the English Catholic Church from fourteen to eighteen years after, though in the latter cases there is no fixed time, and a person of maturer years can be confirmed if he so desires. In the Gk. and Oriental churches C. follows immediately after baptism. In these sects and among the Rom. Catholics it is considered as a sacrament, but not by the Eng. Church. In the Rom. ceremony the bishop in C. makes the sign of the

cross over the person to be confirmed and strikes him gently on the cheek, thus signifying that he will have to suffer buffetings and blows for Christ's sake. The Lord's Supper is not taken by the Eng. and Lutheran churches until after C.

Confiscation (Lat. *fiscus*, the treasury), in its literal signification, means forfeiture of property to the treasury, as, e.g., in Rom. law the *Lex Julia* punished violence without arms by C. of a third of the offender's property. In Eng. law C. of property, generally known as forfeiture, followed on conviction for felony (see CRIMINAL LAW); but the Forfeiture Act, 1870, abolished forfeiture for felony, although in certain cases the accused may be condemned to pay compensation up to £100. The expropriation of neutral ships carrying contraband of war (see DECLARATION OF LONDON) is practically the only other kind of C. now known either to municipal or international law.

Conflict of Laws, or Private International Law, i.e. the body of recognised principles for deciding cases where the private or local law of different nations is in conflict. 'Private International Law,' or to use Professor Dicey's phrase, 'C. of L.,' consists of the rules acted upon by courts of justice in determining: (1) the limits of their own jurisdiction in disputes relating to foreign transactions; and (2) the appropriate law, whether local or foreign, to be applied in a case which is within their jurisdiction. Most civilised countries concur, for example, in deciding cases on contract according to the law of the land where the contract was made. The question whether the courts of one country are guided by courtesy or by legal principle in applying foreign law to the decision of particular cases has given rise to much academic controversy, owing to the truism that the courts of one country cannot be legally compelled to respect alien legal principles. See COMITY.

Confocal, having the same foci. In geometry, a conic or conic section may be regarded as the curve formed by the intersection of a cone by a plane, or as the locus of a point whose distances from a fixed point called the focus and a fixed line called the directrix form a constant ratio. If conics have the same foci, they are termed C. A characteristic proposition is that if an ellipse and a hyperbola have the same foci, they intersect at right angles.

Conformable Strata are beds which rest upon one another in a regular manner, the bedding planes being parallel throughout. This shows that in these cases the same physical con-

ditions have accompanied each deposit of a stratum, and the formation is conformable because continuous and uninterrupted. When, however, land is raised out of the water, denudation takes place, and should those strata become again submerged and new deposits arise, then the bedding would not, as a general rule, be conformable. See UNCONFORMITY.

Confraternities. See BROTHERHOODS.

Confucius (551-478 B.C.), the famous Chinese sage, b. in the village of Ch'üeh, in the prov. of Lü. His family name was K'ung, his clan being an offshoot of the dynasty of the dukes of Sung. In C's. third year his father, who had been a soldier of distinction and valour, died, leaving his second wife, who was C's mother, ill-provided for. The title C. is a Latinised form of K'ung Fū-tsze, 'the Master King.' In 532 B.C. C. married, a son Li and two daughters being the fruits of this marriage. It was in the following year that he began to teach in his native state Ch'üeh-li, having occupied the interval as a subordinate official in charge of public herds and stores. Between 531 and 517 B.C. he paid a visit to the capital at Loh, where it is thought he may have met the great teacher Láo-tsze. In the latter year he took refuge in the neighbouring province of Chi, for Lü was the scene of civil strife in which the reigning Duke Cháo suffered defeat. On the death of this ruler in 510 B.C., Ting became duke in his stead, and when in 501 B.C. he appointed C. governor of the city of Chung-tü he found that he had done an excellent service alike for his own house and for his subjects, for C., who was rapidly promoted to the Ministry of Works and later of Crimes, became at once the idol of the people and the practical reformer of many outstanding abuses. Gov. grew strong; men grew loyal, and women gentle. Immorality and corruption both vanished, and from far and wide men came to see a model state. But petty jealousies undermined his success, and a crafty gift to the duke of some beautiful courtesans led indirectly to a rift between the latter and his counsellor. Accordingly in 497 B.C. C. set out on his wanderings, which were destined to last till 483 B.C. With a little band of faithful disciples he travelled from state to state and court to court, settling always where there seemed most chance of freedom from persecution. Friends and believers in his word were not lacking, yet it was no uncommon thing for his company to be in actual want

and even in peril of their lives. At length there came a message to the teacher in Wei from the ten-year-old Duke Ai, who had succeeded Ting, bidding him return to his native place, which he accordingly did. It is improbable that he made any effort to pick up the threads of his old political life. Rather he devoted his last years to literature, to the collection and exposition of the ancient writings, and especially to the piecing together of his *Ch'un Ch'ü*, which recounts the annals of Lü from 722 to 481 B.C., and to which a peculiarly high interest is attached as the only classical or really authenticated work of this greatest of Chinese sages. But to gain any insight into C.'s personality, it is necessary to turn from such a bare record of biographical facts to the many memorabilia compiled by his disciples, for the Confucian analects were collected shortly after his death, and probably give a true picture of what the Master said and did. They should, therefore, be carefully distinguished from that mass of legendary and apocryphal literature that later grew up round the name of C. as round that of every great religious teacher. And first of all it seems clear from the analects that, unlike other men of equal influence, C. was careful to disclaim any special communion with God. Indeed his conversation was rarely of the nature of divinity or heaven, and his answers to such questions as 'What becomes of man after death?' or 'What is the meaning of sacrifice to the spirits of the dead?' were always enigmatic or evasive. So deficient are his sayings in the fervour of the piety of a Francis of Assisi or in the belief in human progress and in a great social regeneration to come, that many regard Confucianism rather as a system of ethics than as a religion. Yet in the days of his misfortunes and exile he was supported by a belief in the reality of his mission as a preacher of the truth. He said once to his followers fearful for his safety, 'After the death of King Wan, was not the cause of the right way lodged in me? While Heaven doth not wish this cause to perish, what can the people of K'wang do for me?' Further, he is said to have remarked of himself at the age of seventy that he 'could do whatever his heart prompted, without transgressing what was right.' But he has himself told posterity how he liked best to imagine his life's work. Once a disciple was nonplussed when a certain ruler asked him to describe his Master. 'Why did you not tell him,' said C., 'that I am a man who in his eager pursuit of

knowledge forgets his food, and in the joy of its attainment forgets his sorrows, and who does not perceive that old age is coming on?' Thus he would have men picture him as a philosopher eager in the search of truth, but it was always the truth of this world, that is of the just relationship between man and man, rather than the truth of the Unseen and of what all sceptics regard as the Unknowable. 'While you cannot serve men,' he once argued, 'how can you serve spirits?' But the practical nature of his teaching is best realised in his emphatic assertion of the golden rule, 'What you do not like when done to yourself do not do to others.' It seems that he stated it only thus, that is, in its negative form, and his writings make it clear that he also appreciated its worth in its positive and higher form: in one passage he regrets bitterly that he had not taken the initiative in obeying it. The formulation of this axiom of conduct illustrates his sympathetic knowledge of human nature—a knowledge that further illuminates the countless epigrams and sententious maxims upon which it is no exaggeration to say has grown the fabric of Chinese morality. Scattered up and down throughout all the Chinese classics they have upheld the standard of right conduct to which every good citizen tries to conform. Here are a few of his sayings: 'A poor man who does not flatter, and a rich man who is not proud, are passable characters; but they are not equal to the poor who yet love the rules of propriety.' 'What the superior man seeks is in himself; what the small seeks is in others.' 'A man can enlarge his principles; principles do not enlarge the man.' 'In style all that is required is that it convey the meaning.' 'Learning undigested by thought is labour lost; thought unassisted by learning is perilous.' Much of C.'s life was devoted to literature. His remark that 'by the "Spring and Autumn" men would know him and men would condemn him' shows the importance that he himself attached to this part of his work. Yet it is a matter of established fact that the book to which he refers (his *Ch'un Ch'ü*) is full of gross misrepresentations and suppression of essential facts, besides being at the best no more than the most meagre of historical abstracts. The attempt to harmonise his statements with reliable data has been the cause of endless and futile activities among the ablest of Chinese scholars. Yet this book has been the model of all historical summaries of later times. This can only be accounted for by

the unbounded admiration accorded to C. and to all his achievements the instant almost he had passed from this life, where, like many another prophet, he had met with his full share of neglect, scorn, and adversity. To-day the law requires that there shall be a temple to C. in every prefecture, sub-prefecture, district, and market-town in the empire, and although he has never been deified, sacrifices and prayers have from the moment of his death daily been offered him by faithful worshippers in all corners of the Chinese realm. See also CHINA—Chinese Literature.

Congé d'Elire (in Nor.-Fr. *congé d'elire*) means 'leave to elect,' and is applied in England to the warrant or licence from the Crown to the dean and chapter of a cathedral, authorising them to elect a bishop or archbishop, as the case may be, to a vacant see.

Conger Eel, The, a muscular, voracious fish of the eel family (*Muraenidae*). In colour it is usually whitish below and a dark blue-grey above, whilst its length varies from 3 to even 10 ft. It has no pelvic fins nor scales, but its dorsal fin is continuous and stretches very far forward. These eels have wide mouths, sharp closely-packed teeth and free tongues, and though their flesh is coarse, are quite edible. They occur in four distinct species which are widely distributed over the temperate and tropical seas.

Congestion, a localised excess of blood in the arteries, veins, or capillaries. It is to be distinguished from *plethora*, or general excess of blood C., or hyperæmia, may be classified as arterial or venous, active or passive, inflammatory or atonic, functional or hypostatic; or as associated with different parts, as cerebral, spinal, pulmonary, renal, hepatic, etc. Arterial or active hyperæmia is caused by the increased flow of blood to a part: it may be *inflammatory*, when the blood is in excess for the purpose of eliminating irritating substances; or *functional*, when it is due to the normal action of some organ. Venous or passive hyperæmia is caused by delay in the return of the blood to the heart; it may be *atonic*, when it is due to the enfeebled or obstructed state of the circulatory system; or *hypostatic*, when it is due to the action of gravitation. The last two states are necessarily often associated.

Active hyperæmia may be caused by nervous disturbance due to emotion, as in blushing; by increased functional activity; or by local external stimulation, as the application of heat, poultices, etc. The symp-

toms are redness in the adjacent parts and a throbbing which eventually becomes painful. If long continued, a possible effect is hypertrophy of the tissues affected, owing to the excess of nourishment; while a sudden hyperæmia may result in the rupture of blood-vessels and the exudation of blood into the neighbouring parts. The treatment, if it is advisable to reduce the hyperæmia, consists of the application of cold to the part; or the application of a counter-irritant to another part of the body.

Passive hyperæmia may be caused by loss of power in the heart due to old age, debility, or valvular disease. It may also be induced by the action of cold, which constricts the veins without affecting the deeper-lying arteries; or by applying a ligature or tight bandage to a limb or other part. The most dangerous conditions are occasioned by *embolism*, or the blocking of a blood-vessel by a fragment of tissue carried along with the blood-stream; or *thrombosis*, which is the sudden clotting of the blood at some point in the course of a vessel. The surface symptoms of passive hyperæmia include a deepening of the colour to purple. The possible effects are exudation of blood into adjacent parts and fatty degeneration of the tissues owing to failure of the nutritive functions of the blood. If the cause be cardiac weakness, the treatment aims at strengthening that organ by means of tonics such as digitalis, ammonia, etc., and at lessening the strain by a recumbent position and as much rest as possible.

C. of the lung occurs at moments of excitement; it is also a stage of heart disease and of pneumonia, and may occur by reason of the settlement of venous blood in the base of the lung when the heart is enfeebled by old age or the exhausting effects of fevers, etc. In the first stage of pneumonia the vessels are gorged with blood and exudation takes place into the surrounding tissues, leading to the second stage, when the air-cells are occupied by blood. The third stage involves fatty degeneration, when there is considerable danger from absorption of the morbid products. C. of the kidney is active when there is irritation from drugs such as cantharides, or from microbic poisons; it is passive in heart and lung disease or when the *vena cava* is obstructed by tumours. C. of the liver and digestive tract is a normal condition during the process of digestion. It may become excessive through the use of rich or stimulating food. Passive hyperæmia occasioned by debility leads to deficient functioning,

when a condition of chronic catarrh may set in. C. at the base of the digestive tract leads to the formation of hæmorrhoids or piles. C. of the brain is often due to embolism or thrombosis. The condition is known as apoplexy, and is characterised by loss of consciousness and the cessation of functional activity except in the respiratory and circulatory systems, which are, however, considerably disturbed. C. is sometimes induced for remedial purposes, as in the application of poultices, hot air, etc. See BIER'S CONGESTION TREATMENT.

Congleton, an Eng. tn. in the co. of Cheshire. It stands on the R. Dane to the S. of Macclesfield. Its principal manufactures are silk and cotton fabrics. Pop. 11,760.

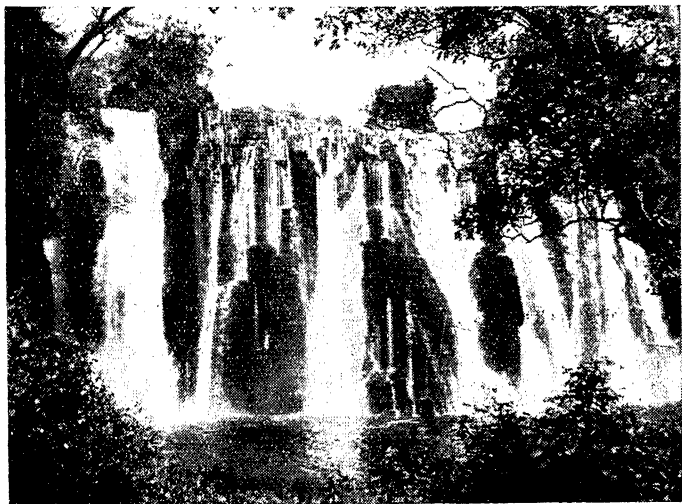
Conglomerates (from Lat. *conglomerare*, to form into a ball) are merely consolidated gravels, and are typical shore formations or beach-deposits. They consist of rounded pebbles, and vary in diameter from 20 to 1 ft., and which owe their smooth surfaces to attrition during transport by sea currents. Most of the pebbles are of a hard rock, such as granite, sandstone, quartzites, cherts, and flints gneiss, whilst the matrix or binding material, where it exists, is sometimes a kind of feldspathic or calcareous sandstone, but usually is similar in consistency to the pebbles, only with a greater proportion of dolomite clay, weathered feldspar, mica, and other softer stones. The stratification of C. is usually very rude, their appearance being described as 'tumultuous,' but rarely they are intercalated with fine materials like shale, which serve to show the nature of their bedding.

Congo Free State, now a colony of Belgium. Its coast-line is only 25 m., but its whole area is some 900,000 sq. m. C. F. S. is bounded on the N. by Fr. Congo, on the N.E. by the Anglo-Egyptian Soudan, on the E. by the Uganda Protectorate, on the S.E. by British Rhodesia, on the S.W. by Portuguese Angola, and on the W. by the Atlantic. The central zone of the colony is a great table-land with an average altitude of 3000 ft. above the sea-level. It is a well-watered country, covered with wooded savannahs and forests which grow in the river valleys, especially towards the E. and N.E. of the state. The forest region, stretching from Albert Nyanza to the mouth of the Aruwimi, known variously as the Great Congo, the Stanley (from its discoverer), and the Pygmy (from the small people inhabiting it) Forest, covers an area of 25,000 sq. m. In these primeval, impenetrable forests are to be found avenues of trees 'like the colonnades

of an Egyptian temple,' opening 'into aisles and corridors musical with many a murmuring fount.' Vegetation grows rank; creeping plants entangle the footsteps of the explorer; dense interlacing foliage of giant trees obscure the sun's rays, and everywhere insect and animal life of brilliant colour and every variety of form flourish in plenty. The long mountain chain, known as the Mitumba Mts., which has peaks varying in height from 5000 to 10,000 ft., runs from the S.E. boundary in a north-easterly direction to the great lake Tanganyika, and then northward past Lake Kivu to Lake Albert Nyanza. The Bambara Hills, to the W. of Tanganyika, are an offshoot of this range. The W. slopes descend gently to the Congo basin, but the E. face is often very abrupt. The Crystal Mts. follow the coast-line. N. of Lake Kivu, the W. shores of which are in the colony, are several volcanoes which belong geographically to the Nile basin. The Congo R., dealt with in another article, is the most important physical feature of the state, as it is also largely responsible for its commercial development. The flora is very luxuriant. The india-rubber is obtained from the lianas of the forest. Giant baobabs grow on the savannahs and in the forests many timber trees, such as teak, ebony, mahogany, besides bamboo palms and resin-yielding trees, and great euphorbias and orchillas are plentiful. There are abundant plantain and banana trees, and in some parts cotton and coffee plants are indigenous. Crocodiles and hippopotami are found in great numbers in the river, whilst red buffaloes and antelopes wander in the open country, and in the forests a great variety of wild animals abounds, including the chimpanzee and other monkeys, the lion, elephant, jackal, leopard, etc. Storks, parrots, and ibises are quite common, and terns, hawks, and herons are found by the banks of the Congo. Ants, mosquitoes, spiders, etc., exist everywhere, whilst dragonflies and butterflies are noted for their gorgeous colourings. The humidity of the climate, combined with the heat, discourages European settlements. Situated in the zone of the equator, the annual variation of temp. is slight. The coldest month is July, the hottest February, the average annual temp. being 90° F. In the W. of the colony rain falls regularly between October and May, the rest of the year being the dry season. It will therefore be seen that along the lower reaches of the Congo the period of heavy rains coincides with that of the greatest

heat, so that it is not surprising that fevers are much more prevalent here than in the central plateaus, where, moreover, the precipitation is dispersed fairly evenly over the whole year. The rainfall varies, rising sometimes to 38 in. Grass fires are common and extensive, and violent storms are not infrequent. Gov. stations, none of which has a population over 5000, correspond to European towns. Banana, near the mouth of the Congo, has a fine natural harbour, and is one of the most important trading centres. Boma, an

Lake Tanganyika, and Boma and the Mayumbe district. There are over 2000 m. of railway and 9000 m. of road. A motor road runs from Stanleyville to Rejaf on the Nile, a five days' trip. Mail services run between the ports of the lower Congo and Hamburg, Rotterdam, Lisbon, and Liverpool. Up to Matadi (85 m.) the Congo is open to ocean-going vessels, and altogether has 6000 m. of navigable waters. River transport has been much developed, and a pipe line runs from Matadi to Leopoldville to supply steamers with oil. There is



[E. N. A.]

THE BELGIAN CONGO

The Bukama District—The Karlula Falls

important port on the Lower Congo 60 m. from the mouth, was the former capital, but the seat of administration was transferred to Leopoldville by royal decree in 1921. The Congo railway starts from Matadi, on the lower Congo, and goes as far as Dolo on the Stanley Pool, passing Tumba half-way. Tumba has supplanted Lukungu as the capital of the Falls district; Leopoldville is the capital of the Stanley Pool, Coquilhatville of the Equatorial and New Antwerp of the Bangala districts. Besides the Congo railway, there is a line from Stanley Falls to the Nile. Railways also connect Stanley Falls and Nyangwe (79 m.), Nyangwe and

an air-mail service between Boma and Elizabethville, both of which towns are important telegraphic centres. Wireless stations are established at fourteen points. Agriculture is still very undeveloped. There are, however, cocoa, coffee, rice, and tobacco plantations, and maize, manioc, and sugar-cane are also grown. Cotton is being increasingly cultivated, about 7,000,000 kilogs. being exported annually. Oxen have been imported from Europe. Rich deposits of copper and copper ore are found in Katanga, especially the southern districts. The export of copper is 100,000,000 kilogs. a year. Petroleum has recently been dis-

covered in the Albertine Rift. Iron, though widely distributed, is still mined in a primitive fashion. Gold mines are worked at Kilo and the Mboga district, Albert Nyanza (30 m. E. of Kilo), and also at Ruwe in Katanga. The gathering of the caoutchouc from rubber vines is the staple industry. Other exports, 75 per cent. of which are sent to Belgium, are ivory, palm oil, coffee, rice, cocoa, timber, and white copal. Food, machinery, clothing, and arms are the chief imports. The inhabitants of the colony belong to the Bantu-Negro stock, but the small Pygmy bands, distributed here and there in the great forests, probably are the survivors of the aboriginals of Central Africa. The natives are divided into many tribes, among which may be mentioned the degenerate Ba-Kongo, the Ba-Luba, the Ba-Lunda, the Mongo, the Bo-kuba, and the warlike Azandeh, who immigrated from the N. Two kinds of culture prevail among the natives: that of the western and central districts, where clothes are made of palm fibre and the bow is the chief weapon, and that of the E. border and Welle district, where skins are used for clothing and the ordinary weapons are swords, spears, and throwing knives. According to another division these Bantu peoples are divided into riverine, forest, and plain tribes. The riverine tribes make excellent canoes, and are keen traders, as indeed are all the natives; the forest people are the most fierce, whilst the standard of culture is highest among the plain tribes. The tribes are for the most part autonomous. They all speak different dialects of Bantu, but most of them understand Swahili. Elaborate funeral rites and the propitiation of countless malignant spirits are the chief articles of religion. The Bantu pop. is given at 8,700,000. The white pop. (1928) numbers 23,276, among which 15,900 are Belgians, 1000 English and 1500 American. The expedition headed by Cameron in 1875 led to the formation of the *Association Internationale Africaine* under the auspices of Leopold II., King of the Belgians. The association was to suppress slavery and to civilise Africa, and a great impetus was given to the movement by the discoveries of H. M. Stanley (q.v.) in 1877. In 1885 the C. F. S. was given international status by the Treaty of Berlin. Before slavery could be suppressed, war took place between the Belgians and the Arab traders under Tippoo Tib. To aid the state to recover financially from the effects of the war Leopold adopted the concession system for exploiting the

natural resources of the country. The system led to many abuses and the C. F. S. was formally annexed by Belgium in 1908. The state became an absolute monarchy. A governor-general, with civil and military powers, represents the king in Africa. At home a colonial minister, advised by a colonial council, now supervises the government of the state, which for administrative purposes is divided into twenty-one districts. Technical and agricultural colleges have been established, chiefly to educate recruits for the armed force of the state. The tariff allows an import duty not exceeding 10 per cent. *ad valorem*; there is a special tariff for Portugal and France. In 1927 some territory in S.W. Belgian Congo, area 3500 sq. km., was ceded to Portugal in exchange for an area of 3 sq. km. in the Congo estuary. The cattle-country of Ruanda-Urundi, formerly in German E. Africa, is now included in the Belgian administration of the Congo under mandate from the League of Nations. See E. D. Morel's *Red Rubber* and H. M. Stanley's *Congo and the Founding of the State*.

Congo River, the second river in Africa in point of drainage area (about 1,425,000 sq. m.), and also in point of length (about 3000 m.), whilst in volume of water it is surpassed only by the Amazon and the Mekong. The mouth of the C. was first discovered in 1482 by Don Diego Cam, the Portuguese explorer, who established a settlement. Nearly 400 years later a British expedition under Capt. Tuckey surveyed the C. mouth, which was believed to be the outlet of the Niger R., but the expedition ended fatally. Later two expeditions under Cameron and Grandy went to the assistance of Livingstone, who died at Lake Bangweulu. Cameron's expedition led politically to the opening-up of the country under the auspices of King Leopold, and in 1877 Stanley made his famous voyage down the C. from Lualaba to the sea. The actual source of the river is still disputed. Geographically the Lubudi, which flows into the Lualaba above Bukama, is the headstream of the C., as from there to the mouth of the C. the river valley shows normal development. But if the source of the C. is to be found in the headstream of its furthest tributary, the C. may be said to rise in a high table-land between Lakes Tanganyika and Nyasa at an altitude of 5000 ft. Its two head streams, the Chozi and Chambezi, after their union, enter Lake Bangweulu, and on their exit at the S. corner are known as the Luapula, which soon hurls itself over the Mumbotuta Falls.

With a breadth varying from 300 to 1150 yds., the Luapula passes through Lake Mweru (2800 ft. high), and in its journey across the Mitumba Mts. falls some 1000 ft. Soon afterwards the main river is joined by the Lualaba and Lubudi, together with two other streams from the W. Up to the Stanley Falls, two rapids only—those at Nyangwe and Ukassa—make the C. unnavigable. Stretching now often over a mile from bank to bank, it receives from the E. the Lukuga, which drains Lake Tanganyika, and further N. the Lira and Urindi, coming from the forest tracts. The Middle C., which enters the alluvial plain of western equatorial Africa at an elevation of 1300 ft., runs mainly in a westerly direction till it turns sharply southward near Bangala. Of the southern tributaries the Lomami, which pursues a course mostly parallel to the Upper C., is the chief, whilst the Lulonga joins the main stream many miles to the W. Other affluents on this side are the Ruki and the streams of the great Kasai system, including the Lukeni, Sankuru, Lulua, Djima, and Kwango. Joining the Middle C. on the right or N. bank are the great Aruwimi and Ituri, which rise near Albert Nyanza and water the equatorial forests, the Rubi and the Ubangi or Welle, which is far the largest tributary on this side. Below the Ubangi is the Sanga, which flows into the C. with a southerly direction. There are many lacustrine expansions along the Middle C., the last being that of Stanley Pool, which is 1000 ft. above sea-level. This part of the river is navigable for some 1020 m. Above Manyanga, on the Lower C., there are about twenty rapids in a course of 90 m. From this place to Isangila, a distance of 70 m., the river is navigable, whilst below ten more falls intervene. During this part of its course the C. drops 850 ft. in 146 m. Round the non-navigable sections of the river railways have been constructed to carry freight, etc. From Matadi to the Atlantic, which the great river finally reaches with a south-westerly course, the distance is 86 m., and may be covered by ocean vessels. The C. alone of African rivers can boast of a true estuary, the bottom being a great cañon extending 100 m. out to sea and obtaining in some places a depth of 4000 ft. below the normal sea-level. At its mouth the C. is 6 m. wide.

Congregation (Lat. *cum*, with *gregare*, to gather into a flock), a collection of people, the term usually being applied to those gathered together for public worship. In the Rom. Catholic Church it denotes

certain bodies of men—such as cardinals—who meet together with a special object connected with the affairs of that church. Thus there is the C. of the Council, which enunciates the formal interpretation of the Council of Trent; the C. of the Propaganda, which looks after missionary affairs; that of the Holy Office of the Inquisition, which sits in judgment on heretics; the C. of the Index, forbidding the reading of certain books; and several others. The term is sometimes applied to a body of men who undertake to observe certain rules, but are under vows less strict than those of the monks, as the Passionists and others. It also signifies a certain number of monks who band together to keep the rules more strictly than the rest of the order: thus in the Benedictine order there are the Cs. of Cluny and St. Maur. The universities are governed by bodies known as Cs. The Congregationalists obtained their name from the fact that they believe in the basis of government being laid down by each congregation for itself.

Congregationalism, the name given to that part of the Protestant Church which, in organisation, is based on independency, in the sense that each body of worshippers or congregation is locally governed and only answerable to itself. It is one of the most important of the Free Churches in the United Kingdom, and occupies an equally important position among the Protestant non-episcopal churches of the U.S.A. Regarded generally, it is one of the three great systems of ecclesiastical government and organisation as contrasted with Episcopacy on the one hand and Presbyterianism on the other, the one with its diocesan organisation and administration, the other with its regulation by ecclesiastical courts, while C. has its roots in independent democracy. In England, the original home of the principles of C., its rise and development were very gradual, and began in a separatist movement from the Church as under the supreme headship of the Crown. In Mary's reign small secret congregations met under Protestant clergy, and without them if such were not obtainable; in Elizabeth's reign these meetings increased, and, realising that no real chance of reformation was coming, began definitely to arrange themselves in local bodies and conform only to what they held to be the real teaching of the N.T. Robert Browne (1550-1633) stands out as the most important figure and leader of the separatist Puritans; after great persecution he and as many of his congregation as were able, emigrated

to Zeeland in Holland. Here they were tolerated, but owing to differences among themselves this community broke up. Persecution in England gave them extra strength, but again differences arose; John Smyth, one of the Zeeland community, became a Baptist, and a Baptist community settled in England; John Robinson, whose views were identical in the main with those of modern C., differed from Robert Browne, and started large and for a time flourishing communities. During the Civil War, the Independents, as they now began to be called, grew and established themselves widely and firmly, and had a great influence in resisting the establishment of Presbyterianism. The real history of religious liberty may be regarded as beginning at that time and through them. Cromwell was a follower and supporter of them, especially in their political views, and the Protectorate saw them firmly settled. The Restoration forced them, with the Baptists and Eng. Presbyterians, into Nonconformity. The history of early C. is closely connected with the Puritan migration to America (*see below*). The Toleration Act, 1689, gave freedom of religious thought to all parties, and this was followed by a period of stagnation or apathy, not only confined to them, to be stirred to a greater spiritual enthusiasm under the inspiration of the Methodist movement of the eighteenth century, when the numbers of Congregational bodies increased enormously. The nineteenth century was marked by a tendency to combination. In 1811 the Congregational Union of Scotland was formed, and in 1832 a similar union was made between the Eng. and Welsh bodies. In 1896 the Congregationalists and the Evangelical Union combined and arranged that international councils should be held, one being held at Boston, Massachusetts, in 1899. The Congregational Union is one of the principal members of the Free Church Federation, founded in 1893. It supports home and foreign missions, the London Missionary Society especially owing much to it. All social reform movements are supported by it. The Central Hall of the Union in Farringdon Street, London, is the official centre. Here there are a fine library and a publication department. The training colleges of the Church were originally small institutions, but have grown to considerable size and importance. There are eight in England and three in Wales, one in Scotland, and three in the British colonies. The chief are Mansfield College, Oxford, 1886, and Cheshunt

College, removed to Cambridge in 1905. There are about 5000 churches and mission stations in Great Britain, with over 1000 churches in British dominions; there are also churches in many parts of the European continent and in Japan.

The history of American C. begins with the arrival in 1620 of William Brewster, elder of the refugee church in Leyden, whose small band founded Plymouth in the modern Massachusetts, though strictly this group were Separatists. Many of these were men of courage, determination, and abounding faith, such as Dr. Samuel Fuller, Harry Vane, the younger; John Eliot, the Indian missionary; and Richard Mather. Enthusiasm that marked the early years of American C. waned, and it was not until 1734 that the 'revivalist' work of Jonathan Edwards (followed by that of Whitefield in 1740) roused fresh zeal. But the Edwardian standpoint was followed by nearly fifty years of apathy, during which interest centred mainly on doctrinal controversy. The 'New England Theology' of Edwards, Bellamy, and Timothy Dwight soon became predominant, and was generally in vogue at the beginning of the nineteenth century. The 'Literal' school of Chauncy and Mayhew, however, rapidly grew in importance, and as early as 1805 was recognised in Harvard College as predominant.

C. has never, however, made much headway in the S. states, the influence of the above theological schools, which emerged out of the old Calvinistic theology of the early New England settlers, being more or less confined to New England states. But it has spread to the West, though it was not until about 1850 that American Congregationalists began to unite and to spread their distinctive policy in the W. states and territories. There has, in the last few decades, been a spread in the community of innovations in doctrinal opinions, and a wider diversity of belief, with the result that 'Evangelical' (popular sense) rather than 'Calvinistic' is the more appropriate definition of American Congregational preachers and churches. Besides some 500 foreign mission churches, there are at the present date (1930) about 6500 Congregational churches in the U.S.A. More than 600 of them are in the state of Massachusetts, which is the stronghold of Congregationalism, no other state reaching the 400 mark. The members of the body number nearly one million. *See R. W. Dale, History of English Congregationalism, 1907; Wiliston Walker, History of the Con-*

gregational Churches in U.S.A., 1894.

Congress (Lat. *congressus*, an assembly; from *cum*, together, and *gradus*, a step). In its diplomatic sense C. means a gathering together of sovereigns or their representatives to discuss questions of international interest. The invitations to a C. may be issued by any interested power. Constant exchange of diplomatic despatches between the invited powers precedes the actual C., so that before the assemblage all plenipotentiaries may understand the exact scope and nature of their business. The minister for foreign affairs of the state in which the C. is held is by courtesy the President, unless he refuses, when the President is elected. In every great C. no decision is binding unless unanimous. After due discussion the various conclusions are included in conventions which are finally embodied in a treaty signed by all the representatives present. Dissenting plenipotentiaries sometimes leave the C. rather than acquiesce in any decisions prejudicial to the welfare of the nations they represent.

Congress of the United States is the National Legislature, consisting of two bodies, the Senate and the House of Representatives. The Senate numbers ninety-six members, each State electing two members for a period of six years. The House of Representatives consists of members from the various States, elected on a basis of population. The Congress is subject to the Constitution, which it may not amend save by a two-thirds majority in each House, followed by approval by three-fourths of the States in the Union; and it is not concerned with the executive power, which is decided by popular election. Its legislative power is limited by the existence of the governments of the individual states, which it may not overrule. The Supreme Court of the U.S.A. has the right to nullify any Act of Congress which is judged to be unconstitutional. Within the Constitution the powers of Congress are in brief these: (1) to levy taxes, duties, imposts and excises; (2) to borrow money on the credit of the U.S.A.; (3) to regulate commerce, foreign and interstate; (4) to establish a uniform rule of naturalisation and uniform laws on bankruptcy; (5) to coin money and to fix the standard of weights and measures; (6) to provide for the punishment of counterfeiting the securities and current coin of the U.S.A. (a 'resulting power' of Congress includes the whole of the Criminal Code); (7) to establish post offices

and post roads; (8) to promote the progress of science and the useful arts; (9) to constitute tribunals inferior to the Supreme Court; (10) to punish piracies and felonies on the high seas and offences against the law of nations; (11) to declare war; (12) to raise and support armies; (13) to maintain a navy; (14) to provide for the calling forth of the militia to execute the laws of the Union, suppress insurrections and repel invasions; (15) to provide for organising, arming and disciplining the militia; (16) to exercise exclusive legislation over the national capital; and (17) to make all laws which shall be necessary and proper for carrying into execution the foregoing powers. Within these terms Congress has to deal with a vast amount of legislation. Bills are proposed by private members, and the committee system has been introduced for reporting on and sorting out those which merit immediate consideration. The President has the power of veto. (*See under ACT.*) Congress meets once a year, but the President may convene one or both of the Houses in special session. The First Session lasts from December of the odd-numbered years until the summer; the Second Session lasts from December of the even-numbered years until March 4. Congress came into being after the adoption of the Federal Constitution, and arose out of the old Continental Congress held since 1789. The present Congress (1931) is the seventy-first.

See Bryce, The American Commonwealth, new ed. 1910; Munro, *The Government of the United States*, 1925; Ogg and Ray, *Introduction to American Government*, 1925; Martin and George, *American Government and Citizenship*, 1927.

Congreve, William (1670-1729), a dramatist, was educated at Kilkenny school, where he was a contemporary of Swift, and at Trinity College, Dublin. Intending to go to the Bar, he left Ireland and came to London, where he entered himself as a student of the Middle Temple; but he soon abandoned law for literature. He made his debut as a man of letters with a novel, *Incognita, or Love and Duty Reconciled*, published pseudonymously, which has long since been forgotten. He next turned his attention to the stage, and his first comedy, *The Old Bachelor*, was produced, four years after it was written, at Drury Lane in Jan. 1693. This was sufficiently successful to justify the management in putting up, in Nov. of the same year, his second play, *The Double Dealer*, which proved very

popular. Some time after Betterton and others of the Drury Lane company seceded, and opened a new theatre in Lincoln's Inn Fields on April 30, 1695, with C.'s *Love for Love*. This proved so much to the liking of the public, and consequently so profitable to the managers, that C. was given a share in the theatre, he, for his part, undertaking to produce a play every year. With this condition, however, he did not comply. Indeed, he wrote only two more pieces, a tragedy, *The Mourning Bride*, played at the Lincoln's Inn Theatre in 1697, and a comedy, *The*



WILLIAM CONGREGVE

Way of the World. *The Way of the World* was received coldly, but the author assured his sympathisers that he was indifferent. His other literary work was the composition of poems not of serious importance. He rendered some service to letters by assisting Dryden in his translation of Juvenal (1692) and Virgil (1697), of which assistance Dryden made due acknowledgment. C., in company with Wycherley, Vanbrugh, and Dryden, was severely mauled in Jeremy Collier's *Short View of the Immorality of the English Stage* (1693). The other writers kept silent—Dryden afterwards admitted the justice of the reproach—but C. replied in a pamphlet, *Amendment of Mr. Collier's False and Imperfect Citations* (from C.'s plays), which Collier answered vigorously and effectively. He had ample means, derived from sinecures, for from 1695 he was commissioner for licensing

hackney-coaches, an office which ten years later he exchanged for the more lucrative commissionership of wine-licences. In 1714 he exchanged this position for that of secretary for Jamaica, worth about £700 a year, which he held conjointly with a place in the pipe-office, that brought him in nearly as much. He lived with Mrs. Bracegirdle—there were rumours that he married her—but on his death he left her, who wanted money, a legacy of £200, and left the Duchess of Marlborough, who did not want money, the bulk of his estate, worth about £10,000. The duchess spent £7000 of the money on a diamond necklace. After 1710 C. was afflicted with bad sight and bad health. He met his death on Jan. 19, 1729, as the result of injuries received in a carriage accident. He was buried in Westminster Abbey. C.'s plays are chiefly remarkable for polished dialogue coupled with a cynical heartlessness and a fashionable licentiousness. *The Way of the World*, his masterpiece, is occasionally given at special performances. A biography was written by Edmund Gosse (1888). The plays were edited by A. C. Ewald (1888), and W. E. Henley (1895).

Congreve, Sir William (1772–1828), the inventor of the C. rocket which was successfully employed at the siege of Copenhagen, Lord Gambier's engagement in the Basque Roads (1809), and at Leipzig (1813), where the 'Rocket Troop' of the Royal Artillery did yeoman service. Besides publishing three treatises on his rocket, which was later superseded by Hale's, he patented many other inventions, including a process of colour printing, pyrotechnic improvements, a smoke-consuming device, and a gun-recoil mounting.

Coni, see CUNEO.

Conia, Conine, or Coniine ($C_8H_{17}N$), an alkaloid contained in the seeds of the spotted hemlock (*Conium maculatum*). It is a colourless, oily liquid with a penetrating smell, boils at $167^\circ C.$, turns brown on exposure to the air, and is soluble in water and alcohol. It is strongly basic; the principal salts are coniine hydrochloride and coniine hydrobromate. The alkaloid and its salts are strongly poisonous; moderate doses produce motor paralysis without loss of consciousness, and larger doses cause death by paralysis of the organs of respiration. Small doses are valuable in acute mania, delirium tremens, and tetanus.

Conibos, or Mancoas, a tribe of S. American Indians, who live along the banks of the Ucayali, Peru, and also in the Pampa del Sacramento. Franciscan missionaries were mur-

dered there in 1685, but since their conversion to Christianity such barbarities have become a thing of the past. As they use the language of the Panos, ethnologists regard them as a branch of that people. They wear silver rings on lips and nose, paint their cheeks with blue and red streaks, and gain their livelihood by fishing and trading with white men in sarsaparilla.

Conical Projection, a system by which points, lines, and areas on the surface of a sphere or other solid are represented by corresponding markings on the surface of an enveloping cone. As the earth is a spheroid, it is impossible to represent accurately on a plane map the relative distances of points on the earth's surface. A cone, however, is a surface which can be unrolled, or spread out on a plane, to form a sector of a circle. If, therefore, the earth is imagined to be enveloped by a cone touching a certain parallel of latitude, the distances on that parallel are accurately rendered on the map when spread out, while the inaccuracy increases as the regions on the earth's surface become more remote from that parallel. In such a map the meridians are represented by straight lines converging to the pole, and the parallels by circles having the vertex of the cone as centre. The method is particularly applicable to maps of the polar regions.

Conic Sections, curves which are formed by the intersection of a cone by planes in different directions. If the cone be cut parallel to the base, the section is a *circle*; if it be cut by a plane parallel to the generator, i.e. a straight line from the vertex to a point on the circumference of the base, the section is a *parabola* (q.v.); if it be cut by a plane parallel to the axis, the section is a *hyperbola* (q.v.); and if it be cut by a plane parallel to none of these, the section is an *ellipse* (q.v.). A C. S. or conic may also be regarded as the locus of a point. Thus a parabola is the locus of a point whose distance from a fixed point is equal to its distance from a fixed straight line; a hyperbola is the locus of a point whose distance from a fixed point bears a constant ratio, greater than unity, to its distance from a fixed straight line; an ellipse is the locus of a point whose distance from a fixed point bears a constant ratio, less than unity, to its distance from a fixed straight line.

Coniferæ, the most important natural order of gymnospermous plants, consisting of between three and four hundred species of resinous trees or shrubs, which inhabit all temperate and cold parts of the world in which arborescent plants can

exist. Some of the most characteristic features of the order are the presence of resin-ducts, the regular monopodial branching of the stem, the long tap-root and the small simple leaves. The classification of the Coniferæ is treated differently by various botanists, but the species are often grouped under the headings Pinoideæ and Taxoideæ. The Pinoideæ contains the majority of the species, and includes the well-known genera *Araucaria*, *Pinus*, *Cedrus*, *Larix*, *Picea*, *Abies*, *Cupressus*, and *Juniperus*, as well as several others of less importance; the Taxoideæ comprises *Phyllocladus*, *Ginkgo*, *Taxus*, and six other genera. (For further details see separate articles, and J. Veitch's *Manual of Conifere*, 1900; for description of pine see D. H. Scott's *Structural Botany*, part ii., 1902).

Conil, a coastal tn., with sardine and tunny fisheries, 21 m. S.E. by S. of Cadiz, in the province of Cadiz, Spain. Pop. 5500.

Conington, John (1825-69), an Eng. classical scholar, was educated at Rugby and Oxford. He obtained a first class honours degree in classics (1846), and won (1847-49) three chancellor's prizes for Latin verse, Eng. and Latin essay respectively. In 1854 he renounced his legal studies in London for the chair of Latin language and literature at Corpus Christi College in his own university. Thus amid congenial surroundings he was able to give effectual scope to his supreme and infectious enthusiasm for classical culture, and also to work at his many translations. The most famous of these is his version of the *Æneid* (1866) in the galloping or octosyllabic metre of Scott, but he also produced a translation of the last twelve books of the *Iliad* (1868) in the Spenserian stanza, of the *Agamemnon* of Æschylus (1848), and of the *Odes* (1863) and *Satires and Epistles* of Horace (1869), the last named being in the heroic couplet.

Conisbrough, a tn. in Yorkshire, 5 m. from Doncaster, celebrated for its ruined Norman castle. Rhinoceros bones have been found here. Pop. 15,860.

Coniston, a village on the shores of Coniston Lake in the N. Lonsdale division of Lancashire, England. There are slate quarries in the vicinity, and copper ore is mined. John Ruskin resided at Brantwood, his property in the parish, and is buried in the churchyard. Pop. 1098.

Coniston Grits and Flags belong to the Ludlow group, which is the geological name of the upper subdivision of the Silurian rocks in Great

Britain. They occur in the Silurian area of the Lake District, Cumberland, being named after Lake Coniston.

Coniston Lake, one of the smaller lakes in the Eng. Lake District, much visited on account of its natural beauty and associations by tourists from Grasmere and Ambleside. It is situated in N. Lancashire, 14 m. W. by N. of Kendal, with which it is connected by the Furness railway, and 9 m. W. of Bowness on Lake Windermere. The breadth is only $\frac{1}{2}$ m. compared with a length of 5 m., the N.W. extremity being overlooked by the round-backed landmark, known as Coniston Old Man (2633 ft.). Perch and trout are fished from its waters. Brantwood, once the home of Ruskin, stands some way above its E. shore. The most picturesque view of the lake may be obtained from the rising known as Tarn Hawes.

Conium, see HEMLOCK.

Conjeeveram (Kanchipuram), the Golden City, one of the oldest towns of India, and one of its seven sacred places. It was the cap. of the renowned Pallava kings. One of the anct. Pallava temples is a most remarkable architectural monument for the extent and beauty of its sculptures. Pop. 51,376.

Conjo, a tn. in the dist. of Santiago and the prov. of Corunna, Spain. Pop. 6200.

Conjoleus, a Fr. tn. in the dept. of Charente. It stands on the R. Vienne. Pop. about 3500.

Conjugal Rights, see MARRIAGE.

Conjugation, (1) a term in grammar applied to a verb to denote its different forms. These forms may be obtained by inflection or by the use of particles and other words, the latter giving the periphrastic form of the verb. Verbs are conjugated to express differences of voice, mood, or tense. (2) a term used in biology for a process which leads to the rejuvenescence of cells or to the reproduction of their kind, and is common only to the lowest forms of animal and plant life. Among the animals to which this method of reproduction is common may be mentioned the *Amœba*, *Paramœcium*, and *Vorticella*; among the plants, the *Spirogyra*.

Conjunctions, in grammar, are words used as connectives between one word and another, or one sentence and another.

Conjuring, the art of producing apparently miraculous effects by tricks or illusions, so as to deceive the audience. Such may be done by sleight of hand and dexterity, combined with a momentary diversion of the attention of the spectators in-

duced by the performer. Large numbers of tricks with cards, coins, etc., are performed solely by sleight of hand, of which the principal basis is the concealment and rapid passing of a card, coin, or small object in or to the palm of the hand; these tricks are elaborated by means of mechanical contrivances, objects concealed in the sleeves, etc., and with specially made or marked packs, etc. They are styled tricks of legerdmain or prestidigitation. Another class, and these are they which have a long antiquity, are based on natural phenomena, unknown or unappreciated by the audience, such as the effect of combining or using chemical substances, electricity, etc. Further, many wonderful feats, especially of Eastern jugglers and conjurers are attributed to hypnotism and the undoubted power of thought transference and suggestion. Elaborate code signals explain many other feats. Further we get the 'illusions' proper, the vanishing figures, automatic figures, speaking heads, and all the devices of the modern scientific conjurer and wonder-worker. C. is often styled 'White Magic,' to distinguish it from sorcery or 'Black Magic.' C., or magic, is a very anct. art: the people of the East delighted in and feared their magicians. The Syrians and Babylonians, and especially the anct. Egyptians, were exceedingly clever conjurers. The anct. Gks. and Roms. also delighted both in C. and juggling, and from ages past till to-day the Hindus have been experts in the art. From China and Japan have come many elaborate and beautiful tricks with birds in cages, gold-fish, and the like. The mechanical figure has a long history, and so has the production of spectral figures or phantasms, obtained by reflection on smoke or on mirrors. Considerable interest was aroused in recent times by the offer of J. N. Maskelyne of a large reward for an imitation of his famous box-trick; the result was a lengthy legal suit carried to the House of Lords. The successful imitator won his case, though his box was not the same as Maskelyne's. The wonders of the mediæval sorcerers were worked on many of the principles developed and improved to-day, when every branch of physical science, chemistry, optics, mechanics, and electricity, is called to the aid of the conjurer or illusionist. J. E. Robert-Houdin (1805-71) was one of the most famous of modern conjurers. His Temple of Magic in Paris was the scene of many marvels, in which he used electro-magnetism; though a Ger., Döbler, in 1842, was the first to use

electricity in his trick of lighting 200 candles at once by the firing of a pistol. Houdin, it may be recalled, was sent to Algiers by the Fr. Gov. to prove that the marabouts were not in league with heaven. The production of objects, of which the rabbit from the hat is the most familiar, has long been a favourite, and has had endless modifications and elaborations. In modern Egypt the street and bazaar conjurers abound. Many of their tricks are performed with mirrors, and in special cases hypnotism and thought-reading play a part. Disappearing figures appeared in England as early as Chaucer, and in the sixteenth century spectral illusions were exhibited in the Colosseum. In the eighteenth century a vanishing figure was produced with the aid of mirrors in France. The illusion of unsupported figures floating in the air was first produced by the Chinese. Roger Bacon was said to have a speaking head of brass, and throughout the Middle Ages we have allusions to man's feats of so-called magic and sorcery which are eclipsed by the white magicians of to-day. Few tricks have surpassed Maskelyne's 'Vanishing Lady,' or his automaton, Psycho, and other performing figures. See J. E. Robert-Houdin, *Secrets de la prestidigitation et de la magie*, 1868 (translation); Louis Hoffman, *Modern Magic, More Magic, Later Magic*; J. N. Maskelyne, *Sharps and Flats*.

Conkling, Roscoe (1829-88), American politician and lawyer, was *b.* in Albany, New York, and was called to the Bar in 1850. From 1858 to 1862, and again from 1864 to 1867, he sat in Congress as republican representative. His final resignation was due to his election as U.S.A. senator, a position he occupied for fourteen years (1867-81). As regards the conduct of the Civil War and the treatment of the S. states he proved an energetic supporter of the policy of Lincoln and Grant, and consequently an opposer of Johnson's schemes. In 1880 his vigorous championship of Grant and his rivalry with Blaine led to a split in the republican ranks. His resignation of his senatorship took place in the following year. Garfield entered into an historic dispute with C. on the question of the New York patronage. C. resigned his office because Garfield had appointed a political opponent of his as collector of the port of New York without seeking his (C.'s) advice. During the whole dispute C. had been favoured with the whole-hearted support of Vice-President Arthur, whose cause C. himself had generously espoused when in 1878 President Hayes removed General Arthur

from his office of collector of customs for New York. In 1881 C. made an effort to secure re-election to the Senate by the state legislature, and, this failing, spent the rest of his life in lucrative legal practice in New York City, appearing as counsel in a number of important cases. Perhaps it was his aggressive line of action and proud bearing which prevented his securing more than the ninety-three votes for the presidential nomination in the republican national convention of 1876.

Conn, Herbert William (1859-1917), an American biologist, *b.* at Fitchburg, Massachusetts. He was educated at the Boston and Johns Hopkins universities, and for a time held the post of professor of biology at the Wesleyan University in Connecticut. He became director of the Marine Biological Laboratory at Cold Spring Harbour, New York (1889-97), and then bacteriologist of the agricultural station at Storrs, Connecticut. From 1905 he was bacteriologist of the Connecticut State Board of Health and director of the State laboratory. He made a special study of the bacteriology of dairy products, and published: *Evolution of To-Day*, 1886; *The Study of Germ Life*, 1897; *The Study of Life's Mechanism*, 1899; *Classification of Dairy Bacteria*, 1899; *The Method of Evolution*, 1900; *A Preliminary Report on the Protozoa of the Fresh Waters of Connecticut*, 1905; *Agricultural Bacteriology*, 1901; *Practical Dairy Bacteriology*, 1907; *Social Heredity and Social Evolution—The Other Side of Eugenics*, 1921.

Conn, Lough, an Irish lake in the co. of Mayo, prov. of Connaught. The R. Castlebar flows into L. C., which in its turn empties itself into the R. Moy.

Connaught, a prov. in the Irish Free State. On two sides, the N. and W., it is washed by the Atlantic, while on the N.E. it is bounded by Ulster, on the E. by Leinster, and S. by Munster. A large part of the prov. consists of a level plain, while the W. and N. is traversed by mountains. C. is noted for the beauty of its lakes, the chief being Loughs Conn, Corrib, Mask, and Allen. The chief rvs. are the Shannon, the Moy, and the Suck. The coast-line is very much indented, forming large bays, the chief being Sligo Bay, Clew Bay, and Galway Bay. C. comprises the counties of Leitrim, Sligo, Mayo, Roscommon, and Galway. Pop. 610,984.

Connaught, Prince Arthur (Arthur Frederick Patrick Albert) of, only son of Arthur, Duke of Connaught and Strathearn (*q.v.*); *b.* at Windsor Castle, Jan. 13, 1883; married, Oct. 15, 1913, Princess Alexandra Victoria,

Duchess of Fife, whose mother was eldest dau. of Edward VII. (There is one son, Alastair Arthur, Earl of Macduff, b. 1914.) Privy Councillor since 1910. Lieut., 7th Hussars, 1903. Capt., Scots Greys, 1907; major, 1915; colonel, 1922. A.D.C. to British Expeditionary Force, 1914-16; G.S.O. (2nd grade) Canadian Corps, 1917-18 (despatches, twice; C.B.). One of the four Counsellors of State during the King's absence in India, 1911-12; and has thrice gone to Japan as the King's emissary to the Emperor. Governor-General of Union of S. Africa, 1920-24.

Connaught and Strathearn, Arthur William Patrick Albert, Duke of (b. 1850), seventh child and third son of Queen Victoria, attended the Royal Military Academy at Woolwich in 1866 and entered the Royal Engineers



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THE DUKE OF CONNAUGHT

in 1868, being transferred to the Rifle Brigade the following year. In 1871, the year of his majority, he received his captaincy and also an annuity of £15,000 from parliament, which was augmented to £25,000 when, in 1879, he married the Princess Louise Marguerite of Prussia (d. March 14, 1917), youngest daughter of Prince Frederick Charles. Appointed major to the 7th Hussars in 1875, he became lieutenant-colonel of the Rifle Brigade in 1876. During the expedition to Egypt in 1882 he led the Guards Brigade at the Battle of Tel-el-Kebir, earning a threefold mention in despatches and receiving

at the same time the order of C.B. He had been created Duke of Connaught and Strathearn and Earl of Sussex in 1874, and in 1893 became general. Two years later (1900), when Lord Roberts went to S. Africa, the duke took his place as commander-in-chief of the army in Ireland, and in 1902 was promoted field-marshal. From 1904 to 1907 he acted as Inspector-General of the Forces, and as commander-in-chief in the Mediterranean 1907-09. In 1910 he represented the king on the occasion of the opening of the Union Parliament in S. Africa. Elected master of Trinity House the same year, he was appointed in 1911 to the Governor-Generalship of the dominion of Canada, which he held till 1916. In 1921 he went to India as the King's representative to inaugurate the new Provincial Legislative Councils of Madras, Bengal, and Bombay. He has been a Freemason since March 24, 1874, became Senior Grand Warden in 1877, Grand Master of England July 17, 1901. His home is Bagshot Park, Surrey; his London residence, Clarence Ho., St. James's; and his continental retreat, Les Bruyères, St. Jean, Cap Ferrat, Alpes Maritimes. A study of his life, by Sir Geo. Aston, was pub. 1929. The Duke has three children: Princess Margaret (1882-1920), wife of the Crown Prince of Sweden; Prince Arthur of Connaught (q.v.); and Victoria Patricia, b. 1886, who on her marriage to Capt. the Hon. Alex. R. M. Ramsay in 1919 was authorised to renounce her title of Princess.

Connaught Rangers. The old 88th Foot was raised in Connaught in 1793 to which circumstance it owed its title. In 1881 the old 94th Foot was linked to the 88th under the title of the Connaught Rangers. In consequence of the inauguration of the Irish Free State some Irish regiments were disbanded in 1922, the Connaught Rangers being one. The regiment was with Abercrombie in the 1801 Egyptian Campaign, and has twelve honours for the Peninsular War. It went through the Crimean campaign and helped to restore order in the Central Provinces during the Indian Mutiny. In 1877-79 it was fighting in S. Africa and again 1899-1902. During the Great War it raised six battalions which fought in France, Flanders, Macedonia, Gallipoli, Palestine and Mesopotamia.

Conneau, Lieutenant (Andre Beaumont), a Fr. aviator who has won several races and a large amount of money also, among the latter being a prize offered by the *Daily Mail* in 1911.

Conneaut, a small tn., fed by three

railways, on Lake Erie in Ashtabula co., Ohio, U.S.A. The first colony in the W. reserve, it owes its commercial importance to an excellent harbour. Jams and other canned goods are made. Pop. 9691.

Connecticut, one of the six of the 'New England States' and of the original thirteen states of the U.S.A. It is bounded on the W. by New York, on the N. by Massachusetts, on the E. by Rhode Is., and on the S. by Long Is. Sound, the area, including land and sea, being 4965 sq. m. The chief rivs. all flow in a southerly direction through gently undulating lands of no great elevation at any part. There are three riv. valleys of importance in the state—the Thames, Housatonic, and the Connecticut—each of the rivs. of which has numerous small tributaries. The E. of C. consists mainly of hills with narrow and deep riv. valleys. In the N. the country is mountainous, but the valley of the C. riv. is broad and fertile, being mostly of Triassic formation, whereas the greater part of the rest of the state consists of rocks of granite and gneiss. Brownstone, which is used in large quantities in the cities for building, is quarried at Portland, while good building stone is found on Long Is. Tungsten is mined also, copper, lead, and other minerals being found in places. The climate of the state is subjected to extremes of heat and cold, while the soil in the N. part is fertile and in the S. sandy. There are no great agricultural facilities, as a large portion of the soil is not so fertile as that of other states. C., however, has the advantage of nearness to important markets and of possessing manufacturing towns. Hay is one of the most important products and tobacco is grown in the C. valley. Dairy produce and fruit farms are also a source of wealth, and some cereals are grown. C. is a very important manufacturing state, and its position, together with the facilities afforded by its rivs., has largely contributed to this end. Its manufactures are many and varied, the chief being brass, cotton, silk, and woollen goods; carpets, hosiery, leather, boots and shoes. C. ranks high in the matter of education. Yale Univ. has 1095 teachers and 4960 students; the Wesleyan Univ. 620 students and the C. College for Women 551. In 1925 there were 23,240 farms, 21,000 acs. were under tobacco in 1929. In 1927 there were 2877 manufacturing establishments with 240,806 wage-earners. C. is said to have been the first community in the world to form a written constitution by a social compact. Such constitution was confirmed by

Charles II. in 1662. The General Assembly consists of the Senate of thirty-five members and the House of Representatives of 258 elected for two years. Pop. 1,606,903. Principal cities are Hartford, 164,072; New Haven, 162,655; Bridgeport, 146,716.

Connecticut River, the largest riv. (some 450 m. long) in New England, U.S.A. Rising in the extreme N. of New Hampshire, it forms a boundary between that state and Vermont, crosses Massachusetts and finally C. where it enters Long Island Sound at Saybrook, 30 m. E. of New Haven. Its general course is always southerly. For ships of light draught it is navigable as far as Hartford (50 m. up). The W. tributary, known as Hall's Stream, separates Canada from the U.S.A. for some distance. The C. is noted for its shad fisheries and drains an area of 11,260 sq. m.

Connellsville, situated on Youghioheny R. and connected with the Ohio, Baltimore, and Pennsylvania Rivs., is a bor. of Fayette co. in S.W. Pennsylvania, U.S.A. Here most of the coking coal for iron smelting in America is produced. There are many manufactories. Pop. 13,290.

Connemara (The Bays of the Ocean), known also as **Ballynahinch**, forms the westernmost division of co. Galway, Ireland, and is itself subdivided into Joyce co. in the N., C. proper in the W., and Yar-Connaught in the S. In length it reaches for 30 m., whilst its breadth varies from 15 to 20 m. Tourists are attracted by its wild scenery of bogs and mountains, lakes, and inlets, whilst anglers are certain of good sport.

Connorsville, situated on the White-water R., 828 ft. above sea-level, the cap. of Fayette co. in E. Indiana, U.S.A., and a centre for three great railway systems. Makes automobiles and furniture. Pop. 12,795.

Connétable de France, a name used at different periods in Fr. history for different offices. Under the early kings it was applied to a dignitary at Court, but in the reign of Philip Augustus the commander-in-chief of the army was known as the C. Such was the C. until Richelieu removed him in 1627. But Napoleon revived the office in 1804, giving it to his brother Louis. It was finally done away with when the line of Bourbons was restored.

Connolly, James (1870–1916), Irish socialist and rebel, was b. near Clones, co. Monaghan; son of a labourer, who in 1880 took his family to Edinburgh. 'Devil' in *Evening News* office, worked in a bakery and a mosaic-tile factory; then, in turn, tramp, navvy, and pedlar. Returned to

Edinburgh as corporation-dustman. Joined S.D.F. and went to Ireland in 1896 as their emissary. Established Irish Socialist Republican Party. Lectured in Great Britain and U.S.A., returning to Ireland in 1910. With James Larkin, organised strike of transport workers, 1913. Three years later, as a 'fight against the War,' led Easter Week rising in Dublin. Captured by the British; shot dead at Kilmainham Jail, May 12, 1916.

Connor, a par., 1 m. from Kells station, and 6½ m. N. of Antrim, in the S.W. of the co. of Antrim, Ireland. Pop. of parish, 4593; area 17,140 acres.

Connor, Ralph (Charles W. Gordon) (b. 1866), a Canadian clergyman and novelist, was educated at the university and at Knox College, Toronto. From 1890 to 1893 he did excellent work as missionary among the lumbermen and miners in the Rocky Mountains, and it is on the experiences gleaned during these years of service and adventure that most of his works of fiction are based. Of his novels the best known are: *Black Rock*, *The Sky Pilot*, *The Pilot of Swan Creek*, and *The Dawn by Galilee*.

Connotation and Denotation, words used in logic with reference to 'terms' or names. The connotation of a term implies certain qualities possessed by the object of which the term is a name. Comprehension and intension are words used to express the same thing. The denotation of a term shows how many particular objects the name can be applied to, 'extension' being used as synonymous with denotation. For example, when the term 'dog' is used, the connotation of that term implies certain characteristics as to size, hairy coats, shape of the animal, fidelity, and other attributes, and it could not be applied to anything else which did not possess all these attributes in conjunction. That is to say, the word 'dog,' when used, calls up certain attributes to anyone hearing the term. The denotation of this same term 'dog' is the number of particular animals to which this name can be applied, which, of course excludes everything not possessing the essential characteristics necessary to place it in this class. The connotation of a term determines its denotation. Thus, when the term 'dog' is used it can be applied to all animals having hairy coats, a particular size, shape, and certain other characteristics. If, however, the connotation is increased, the denotation is decreased. So the term 'white dog,' which adds another quality, namely

'white,' will apply to fewer animals, as all dogs of other colours will be excluded. All terms have denotation, but proper names, according to most logicians, have no connotation in that they do not imply any particular attributes. See J. S. Mill, *Logic*, bk. i.; Dr. Bosanquet, *Logic*.

Conolly, John (1794-1866), founder of the British Medical Association. In 1832 C., together with Sir John Forbes and Sir Charles Hastings, instituted a medical society for the improvement of practices in the provinces—a society which proved to be the British Medical Association in embryo. In his *Construction and Government of Lunatic Asylums*, 1847, and *Treatment of the Insane without Mechanical Restraints*, 1856, those splendid principles are enunciated which have justly shed renown over C.'s revolutionary and successful administration of the Hanwell Asylum.

Conon, (1) a Gk. mathematician, flourished at Alexandria about 250 B.C. Berenice, the wife of Ptolemy Euergetes, lost her hair, which she had dedicated to the temple as an offering to secure her husband's safe return. C. declared that the Coma Berenices (Hair of Berenice) had been set among the stars. Catullus, who imitates Callimachus, wrote a poem on this incident. (2) Athenian general, played a conspicuous part in the latter half of the Peloponnesian War, when the glory and supremacy of his native city were already waning. In 406 B.C. he was chosen as one of the ten commanders who succeeded the fallen Alcibiades. After the disastrous defeat at Aegospotami in 406 B.C., C. was obliged to seek refuge with his friend Evagoras, King of Cyprus. When war broke out between Persia and Sparta, C. together with the satrap, Pharnabazus, became commander of the Persian fleet, and in 394 redeemed his former reputation by overcoming the Spartans near Cnidus. But his noblest act of patriotism was the restoration of the long walls and of the fortifications of the Piræus, and the expulsion of the Lacedæmonian harpists from many of the seaboard garrisons of the Ægean. Some say he d. in Cyprus about 390, others that Tiribazus, the Persian, had him assassinated, when he came on an embassy from Athens, as a proof of his loyalty to Sparta.

Conqueror. The name of many British battleships. The most famous were that of Boscawen's victory in Lagos Bay (1579), of Byron's action with D'Estaing (1779), of Rodney's encounter with De Guichen (1780) and De Grasse (1782). There was also a *Conqueror* at Trafalgar (1805),

and at the capture of Simonoseki, Japan (1864). A Dreadnought of this name was built in 1911-12.

Conquest (Lat. *conqueri*, to obtain), in Scottish law, heritable property which came into the possession of the deceased by purchase, gift, or in any other way unconnected with his capacity of heir, from a stranger, or from a relative to whom he would not by law have succeeded, is called C. But the distinction between C. and heritage proper has been rendered devoid of practical significance since the Conveyancing Act, 1874, provided that the fees of C. should descend in all respects in the same way as fees of heritage.

Conquistadores (Sp., conquerors), a collective term for the Spanish conquerors of America. The title is applied especially to the great leaders who conquered the natives of Peru, Mexico, and other parts of Spanish America, such as Cortes, Bilbao, Almagro, and Pizarro.

Conrad I. (d. 918), Ger. king, came to the throne in A.D. 911 as the direct line of the Carolingians was extinct. He belonged to a distinguished Franconian family and was related to King Arnulf. His reign was a wearisome succession of wars. Both the Magyars and Normans from without and the stem-duchies from within effectively opposed his schemes of unification, and later the Bavarians and Swabians waged continuous and equal warfare with him. C. tried in vain to get possession of Lorraine, and could make no headway against Henry the Fowler of Saxony, whom he ended by naming his successor.

Conrad II. (c. 990-1039), emperor of the Holy Rom. Empire, and founder of the Franconian line, was a descendant of Otto the Great. In 1024, on the death of Henry II., C. was crowned king by his chief supporter, Aribo, Archbishop of Mainz; but there were many who disputed his sway. The death of Boleslaus, the Duke of the Poles, in 1025 removed one of his enemies. In the following year C. assumed the Lombard crown at Milan, and after defeating the inhabitants of Pavia and Ravenna, was crowned emperor at Rome in 1027 by Pope John XIX. In 1032 he acquired Lusatia, having worsted Mesislaus, duke of the Poles, in several engagements, and the next year he was duly crowned king of Burgundy at Peterlingen. After putting an end to the border ravages of the Bohemians and other Slavonic tribes he again crossed to Italy in 1036. Here he issued an edict by which in future the principle of heredity was to apply also to land

held by the small vassals. His son Henry, who received Burgundy during his father's lifetime, afterwards became emperor as Henry III. By his decree the law of Justinian supplanted the Lombard law in Italy.

Conrad III. (1093-1152), Ger. king, and founder of the Hohenstaufen dynasty, was actually crowned King of Italy at Monza in 1128, but finding it impossible to make good his claims against those of Lothair of Saxony, he finally recognised the supremacy of the latter in 1135. However, Lothair died two years later, and in 1138 the Ger. princes, fearing the growing strength of the Guelph party, offered him the crown. The refusal of Henry the Proud, Duke of Bavaria and Saxony, to give C. his allegiance made the latter's position intolerable. Germany, Saxony, Burgundy, and Bavaria were in a state of continued and hopeless civil disorder. Meanwhile Italy also was a prey to the disastrous quarrels of Guelphs and Ghibellines and other factions. Thus when war was declared between Bavaria and Hungary in 1146, C. gladly seized the opportunity to escape from the endless turmoils, which was offered when St. Bernard of Clairvaux preached a new crusade. C. joined the crusade, but disaster still followed in his track. His splendid troops fell victims in Asia Minor to the ravages of the plague and warfare and C. himself was stricken with disease. Finally, in 1148, he left Palestine broken in health and with no results to crown his great exertions.

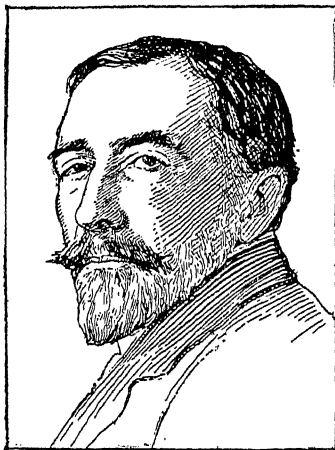
Conrad IV. (1228-54), Ger. king, was the son of King Frederick II. Crowned emperor of the Romans in 1237, two years after he had been chosen Duke of Swabia, he at once involved himself in the futile and long-standing quarrel between emperor and pope. Until 1250 he was warring with two anti-kings, and was constantly fighting the leaders of the papal party in Germany. After narrowly escaping assassination at Regensburg, he assumed the title of king of Jerusalem and Sicily, marched to Italy, captured Capua and Naples, and was preparing to return home with a large army when death overtook him in 1254.

Conrad, Joseph (native name, Teodor Józef Konrad Korzeniowski) (1857-1924), novelist writing in Eng.; b. Dec. 3 (Nov. 21, O.S.), 1857, at Bordingew, Ukraine; only child of Apollo Nalecz Korzeniowski: a Polish gentleman, who was in 1862 exiled as a conspirator to Vologda—afterwards being sent to Tchernikow, where his wife, who accompanied him with their child, d. April 6, 1865. In 1867, being permitted to travel,

Apollo K. went to reside in Lemberg, Galicia, where Joseph attended a Polish High School. In Feb. 1869, father and son removed to Cracow, where the former d. May 23, 1869. During the guardianship of an uncle, Thaddeus Bobrowski, who remained a lifelong friend and counsellor, Joseph in 1873 made a health-tour through Germany and Switzerland, and to Venice; this was his first sight of the sea, yet he had long resolved to be a sailor. Before the end of 1874 he was at Marseilles, whence he made several Mediterranean and Atlantic voyages. In 1878 he was wounded in a duel. On June 18, 1878, he landed at Lowestoft from the steamer *Mavis*, knowing hardly

and for a while managed a Thames-side warehouse. After that he made two voyages to Australia and back as mate of the sailing-ship *Torrens*, and this ended his seafaring life.

His first literary effort had been to try unsuccessfully for a *Tit-Bits* prize for a short story in 1886. On *Almayer's Folly* he worked 1889-94; it came out in April 1895. There followed, among other works: *An Outcast of the Islands*, 1896; *The Nigger of the Narcissus*, 1897; *Lord Jim*, 1900; *Youth*, 1902; *Typhoon*, 1903; *Nostramo*, 1904; *The Mirror of the Sea*, 1906; *The Secret Agent*, 1907; *Chance*, 1914; *Within the Tides* (stories), 1915; *Victory*, 1915; *The Arrow of Gold*, 1919; *The Rescue*, 1920; *The Rover*, 1923. *Suspense*, a tale of Napoleon in Elba, is unfinished. Though C.'s Eng., like that of many intelligent foreigners, reached a distinction compassable by few native writers, it was subject to the mistakes of one who never perfected his education by book-learning. He spoke it with a strong foreign accent. In his later years, C. attained a position in the world of Eng. letters which is vouchsafed to few writers. Yet he left but comparatively little money at his death, judged by present-day standards, the sum being about £60,000. It seems doubtful, however, whether he can be included among the really greatest Eng. writers of fiction, or even of sea stories, and his popularity was far from being of that imperishable character which is based on a universal appeal. His work, indeed, is so artistically wrought and of such introspective power that he is almost essentially a novelist's novelist and, in a sense, caviare to the multitude. It is not improbable that his comparative want of popularity with the great public is due to the somewhat abstruse and mystical manner of handling a story of the sea and seamen—a manner the very antithesis of the robust and objective style which has enshrined the names of Marryat, Clark, Stevenson, Defoe, and a host of others in Eng. hearts. But C. had a wonderful power of getting an ocean 'atmosphere' and the strange mystery-loving nature of seafaring folk is conveyed by him in unrivalled manner. It is essentially the mystery and magic of the sea which so strongly appealed to C., and he is far from being a realist in fiction for that reason. For psychological insight, too, he is conspicuous, a power which is exemplified to a remarkable degree in *Lord Jim*, veritably a master-creation in the analysis of a human soul. Yet C. always disclaimed all ethical purposes



JOSEPH CONRAD

a word of Eng. After one voyage to Australia, in a wool-clipper, and another to Mediterranean ports, he passed his examination for third mate in London, June 1880. A long series of voyages followed—all taking him into Australian and Malayan waters. In March 1883 he suffered shipwreck through the barque *Palestine* taking fire between Sumatra and Borneo. The same year he passed his examination for mate. In 1885 he became a naturalised British subject and obtained a master-mariner's certificate. His first command was of the barque *Otago*, from Bangkok to Melbourne and thence to Mauritius. In 1890 he was master of a steamboat on the Congo. He was obliged after this to recuperate in Switzerland,

and preferred to be regarded as a purely romantic writer, in passionate love with his milieu and always master of his great imaginative vision. C. d. of heart-failure at his house—Oswalds, Bishopsbourne, Kent, on Aug. 3, 1924.

Conrad, Michael Georg (b. 1846), a Ger. writer, b. in Franconia, Bavaria. He studied modern languages and pedagogy, and taught for three years in Geneva. He engaged in journalism (1868–83), visiting Paris and Munich, where he founded the 'realistic' weekly, *Die Gesellschaft* (1885), editing the first eight annual issues alone, 9 to 13 with Merian, 14 to 16 with Jacobowski. Among his works are: *Erziehung des Volkes zur Freiheit*, 1870; *Flammen für frei Geister*, 1882; *Deutsche Weckrufe*, 1890; *Parisiana*, 1880; *Französische Charakterköpfe*, 1881; *Mme. Lutetia*, 1883; *Lutetias Töchter*; *Pumpenella*, 1889; *Gelüftete Masken*, *Allerlei Charakterköpfe*, 1890; *Von Emil Zola bis Gerhart Hauptmann*, 1902. His *Ketzerblut sozial-politische Stimmungen und kritische Abschlüsse*, 1893, is a 'nationales Protestbuch' with a violent attack on Berlin. His impressionist work in the naturalist manner won him the name of 'the foremost apostle of Zola.' Other writings are: *Totentanz der Liebe*, 1884; *Die klugen Jungfrauen*, 1889; *Was die Isar raucht*, 1889–98; *Die Berichte der Narren*, 1893; *Fantasio*, 1889; *Majestät*, 1902, dealing with the relations of Ludwig II. and R. Wagner. His dramas are: *Die Emanzipierten*, 1888; and with Willfried Färna Goldberg, 1889; and *Salve Regina*, 1899.

Conrad von Hötendorf, Franz, Baron (1852–1925), military commander under Austro-Hungarian Empire; b. in Vienna Nov. 11, 1852, son of a colonel, served against Bosnian insurrections of 1878 and 1881. A close friend of the Archduke Franz Ferdinand. Appointed Chief of General Staff, 1906, reorganised artillery. In 1908–9 was for war with Serbia, in 1911, with Italy—overridden by Aehrenthal, in Nov. 1911 was dismissed. Reappointed, 1912; set pace for Great War after Sarajevo murder. Broke Russians on Galicia front, 1915, made Field Marshal. Displaced by Emperor Charles, commanded on Italian front; was defeated south of Asiago, June 15, 1917. Retired, a baron. Wrote memoirs, *Aus Meiner Dienstzeit*. Died at Mergentheim, Aug. 26, 1925. (Consult Von Glaise Horstenau, *Collapse of Austria-Hungary*, Eng. Trans., 1930.)

Conradi, Hermann (1862–90), a Ger. writer; studied in Berlin, Leip-

zig, and Würzburg, and early started upon a literary career. He was a leader of the new 'storm-and-stress period,' and a zealous supporter of the naturalistic tendencies of his time. His sketches, *Brutalitäten* and *Lieder eines Sünders*, appeared in 1886 and 1887. He also wrote the romance *Phrasen*, 1887, followed by *Wilhelm II. und die junge Generation*, 1888. His *Adam Mensch* (1889) caused a great sensation, and involved C., Walloth, and Alberti in a law suit for transgressing public morality. C. d. during the judicial proceedings.

Conradin of Swabia (1252–68), b. near Landshut, Germany, was the last Ger. emperor of the Hohenstaufen dynasty, son of Conrad IV. His empire was exposed to the hereditary enmity of the pope by a long minority under Louis of Bavaria. In 1267, unopposed, and supported by the Ghibelline faction, C. entered Rome, but was defeated at Tagliacozzo in 1268 by Charles of Anjou. He was betrayed by Charles and executed at Naples in 1268.

Conrad von Wurtzburg (Würzburg) (d. 1287), a famous Ger. poet and troubadour of the late thirteenth century. Little is known of his life, but he seems to have spent some time in Strassburg, and later in Basel, where he d. He was influenced by Gottfried of Strassburg, and his work reached a far higher level than that of most of the Middle High Ger. poetry of the period. Among his works are legends of Alexius, Silvester, Pantaleon; *Der Welt Lohn*; *Die goldene Schmiede*; *Klage der Kunst*; two long epics, *Der Trojanische Krieg* and *Partenopier und Meliur*. His shorter verse romances are better—*Engelhart und Engeltrut*; *Das Herze-maere*, familiarised by Uhland's *Kastellan von Coucy*. Examples of his shorter poems may be found in Lambel's *Erzählungen und Schwänke des Mittelalters*, 1883. See Pfeiffer, *Germania*, iii., 1867; Golther in *Allgemeine Deutsche Biographie*, vol. xlv., 1898, under 'Würzburg.'

Consalvi, Ercole (1757–1824), a celebrated Italian statesman and cardinal. By 1792 he had obtained the office of 'auditor de Rota,' a member of the highest civil court. C. was wrongfully imprisoned for a time as instigator of the murder of Duphot, 1797. In 1801 he negotiated the Concordat with Napoleon in Paris. Bonaparte had him dismissed from office, 1806, being angered at his defence of Papal supremacy and independence. He was banished from Rome, 1810. C. was reinstated in office, 1814–23, and governed the Papal states by a most liberal and humane policy. Capital

punishment for heresy and torture were abolished, and new laws enacted. The Romans named him 'le grand cardinal' for all the benefits conferred upon them. C. retired on the death of Pius VII., 1823; he was recalled by Leo XII., but d. soon afterwards at Rome. *See* de Montor, *Vie du pape Pie VII.*, 1837; Bartholdi, *Züge aus dem Leben des Cardinal Consalvi*, 1825; *Cenni biografici sul Cardinale Consalvi*, 1824; Crétineau-Jolly, *Mémoires du Cardinal Consalvi*, 1864.

Consanguinity (Lat. *cum*, together, and *sanguis*, blood), or kindred, is the relationship between persons of the same blood. This relationship may be 'lineal' or direct, that is, the relationship which subsists between ascendants and descendants who are in a direct line one with the other, or it may be 'collateral' or indirect, that is, the relationship between two persons, sprung from a common ancestor, root, or stock, but not descended one from another. Laws of inheritance, descent, and in most countries of marriage are largely governed by the ties of C. They differ naturally according to place and country. Thus in some of the United States the C. of uncle and niece does not prohibit marriage, as it does in France (according to the Code of Napoleon), England, etc., and—to take an example on the opposite side—the old canon law would not allow persons to marry between whom there was only the seventh degree of C.

Conscience, knowledge within oneself. In ordinary language C. means the inward recognition of what is right or wrong in one's own actions, a moral sense of consciousness. In ethics, however, it has had various special applications, or rather has, in various schools of moral philosophy, been regarded from different points of view. Thus it may mean simply an ordinary judgment of one's own conduct, using the same criteria or standards, however, gained, as one uses in forming judgments about other things and applying them to one's own actions. It is in this sense a moral consciousness applied to oneself and to one's own actions. On the other hand, it has been pushed to an extreme so that it becomes an intuitive, infallible natural faculty of the mind, a law to itself. The theory that C. is an infallible faculty of the mind is one part of the intuitionist school of ethical philosophy. According to this school, C. as a special faculty at once recognises what is right or what is wrong, whether the person acts or no on its dictates. The part played by C.

as a principal factor in an ethical system has been chiefly discussed and emphasised by the Eng. schools of philosophy. Shaftesbury (1671–1731) drew a close parallel between the sense of beauty and the sense of what is right or wrong; as it is a faculty in the sphere of art, so also is it a faculty in the sphere of action; it is a 'moral sense' which determines the value of actions; according to Shaftesbury it is mainly non-reflective. Francis Hutcheson (1694–1746) developed the 'moral sense'; but he tends to separate the working into two parts, one acting deliberately or deductively, one instantaneously or intuitively, a feeling of satisfaction or dissatisfaction according as actions are good or bad. The 'moral sense,' though acting both deliberately and intuitively, is not, however, the standard of judging moral actions; that is, the general well-being of society, the 'greatest happiness of the greatest number.' It is in Joseph Butler (1690–1772) that we find C. developed in an ethical system to its fullest. He analyses the nature of man into the passions or affections; self-love and benevolence and C. The last is a universal principle of reflection, and virtuous action consists in following its dictates; it judges self-love as that which has weighed the passions in the balance and decided which is to its real interest. C., therefore, has an absolute power, and it is the 'law of our nature,' and virtue consists in following it. When analysed further, Butler's C. seems to have no real basis; it does not connect with the will or practical reason. The utilitarian school of ethics dominated Eng. moral philosophy, and the intuitionists, both in the 'moral sense' school and in Butler's 'C.' school, ceased to have influence. Henry Sidgwick in his *Methods of Ethics*, 1874, reconciled the utilitarians and the C. or moral school; the C. or moral sense recognises the general good of the greatest number as the rule of moral conduct. *See*, further, *Ethics* and the names mentioned above.

Conscience, Courts of, which were superseded by county courts, were at one time established at Westminster and other commercial centres by local acts of parliament, for the recovery of small debts, usually under £5.

Conscience, Hendrik (Henri), (1812–83), a popular Flemish novelist, entered the army, 1830–36, then retired and became known as a composer of songs. In 1837 he produced the romance *In het Vonderjaer* (The Year of Miracles, 1566). The novel *De leeuw van Vlaanderen* (Lion of Flanders) followed, 1838; and *Phan-*

tasia, a collection of short stories. King Leopold became his patron, and helped him to find employment in his native Antwerp and elsewhere. He was especially distinguished for his writings on Flemish village life, and contributed largely to the revival of Flemish literature and interest in the language. C. won the national prize, 1870, with *Bavo en Lieveken*. Other works are *Jacques d'Aretervelde*, 1840; *Batavia*, 1858; *De arme edelman*, 1851; *De jonge Dokter*, 1860; *Benjamin van Vlaanderen*, 1880; *De burgemeester van Luik*; *Flemish Dramas*, 1866; *Martyrs of Honour*, 1880; *Serfs of Flanders*, 1882; *The Good Mother*; *The Demon of Gold*; *Ricketicketack*. See Eckhoud's *Vie*, 1881; Tol de Mont, *Life*, 1883.

Conscience Money, this is the term which is given to various sums of money received by the Chancellor of the Exchequer from anonymous persons who have voluntarily evaded their obligations, more especially as regards taxes, etc. Thus the expression may be aptly described as money paid to score off an old debt and thus relieve the conscience.

Conscientious Objector. This term came into prominence during the Great War, and was applied to those who alleged that they objected on moral or religious grounds to military service in a fighting capacity. Special measures were taken to deal with them in the Military Service Act of 1916 (see article CONSCRIPTION, *infra*), and whilst there was no doubt about the sincerity of the views held by some, there were many who found in it a convenient excuse to avoid going to the front. Many Quakers were C. Os., but some were found in the fighting ranks and gained distinction therein. Under the Representation of the People Act, 1918, C. Os. were to be disqualified from voting for five years after the War unless they satisfied the Central tribunal that they had fulfilled certain conditions, such as employment in work of national importance. This provision, however, proved a dead letter and other penalties imposed on C.O.s., such as loss of seniority in the Civil Service, were later rescinded.

Conscription. What is termed C., or in other words, the compelling every man eligible in the country to make himself efficient for service in the ranks of the national army and take his place therein when necessary, was brought into being in modern times by Napoleon in 1798. It was adopted by Prussia in 1806 after the destruction of its army by the Fr. at Jena, and in that country the system was so

perfected that in theory it had, just before the Great War, the most complete fighting machine ever seen. The *modus operandi* in most countries is that every man on reaching a certain age—nineteen, twenty, or twenty-one—has to take his place in the ranks, and undergo a certain period of military training. In some countries all those liable and found fit to serve are enlisted. This prevailed in Germany before 1914 and prevails in France to-day. The exceptions are mainly: only sons or eldest sons of widows, and clergymen, etc. This is not quite the same in all countries, as, for instance, in Spain and Portugal where C. is in force, every man is not directly called upon to serve, but each locality is obliged to furnish a certain number, and on a certain day a ballot is taken, and those who draw numbers corresponding to those required are taken if found fit; anyone can find a substitute, and by this means no rich man's son need ever serve. In the Netherlands the army is mainly composed of volunteers, although C. is the law of the land. There is no standing army in Switzerland, but every able-bodied citizen serves in the militia, which is called up for annual service for a few weeks. The best conscriptive countries have so legislated that suitable work is found for the conscript when he leaves the colours, and, furthermore, his period of service is never so long as that of men in a voluntarily enlisted army, such as the Regular Army of Great Britain. Arguments in favour and against C. will be found in Lord Roberts, *Fallacies and Facts*, etc., 1911, and Ian Hamilton's *Compulsory Service*, 1910. In the Great War, when whole nations as well as their armies soon became involved directly or indirectly in the struggle, the voluntary system of recruiting the armies of necessity broke down. Under that system in England thousands of young men at once responded to appeals and patriotically left their homes and businesses. Others in far distant corners of the earth also returned to Great Britain prompted by the same motive. But it was only a matter of time when this spontaneous supply would be exhausted and other measures had to be taken to recruit field armies at all commensurate with the vast and growing extent of the military operations. In 1915 there was agitation in Great Britain in favour of C. but Parliament hesitated to adopt an institution which had always been repugnant to British tradition. Lord Derby was then appointed to direct the recruiting service according to a plan which involved an element

of compulsion by the introduction of tribunals to decide the appeals in individual cases, enlistment being a condition precedent to any right of appeal. This method was successful up to a point, but the supply of unmarried men upon which the 'Derby Group System' at first mainly relied, soon gave out and at length Parliament agreed to compulsory service and the first Military Service Act was passed early in 1916. This brought into operation an universal machinery for sifting the manhood of the nation and for hearing appeals for exemption. As the war continued other Acts were brought into force which had for their object the finer 'combing' of the nation as one source after another was drained.

In the U.S.A. those who had closely studied the effect of the war upon the man-power of Great Britain were not slow to advocate some form of compulsory service as soon as war was declared against Germany. In May 1917 the Selective Service Act was passed, under which 1,000,000 men were authorised to be enlisted for 'selective service.' As in Great Britain, the process of passing the men through the medical and physical tests disclosed many surprising facts regarding the general fitness for military service of millions of Americans. With the Armistice compulsory service in U.S.A. and Great Britain ceased.

Consecration. The solemn appropriation or dedication of anything to the service of God. In modern times, the C. of persons is called *ordination* except in the case of Kings and Bishops; when the ceremony is still named C. When applied to temples and churches it is termed *dedication*. Under the Jewish theocracy not only men and beasts were consecrated to the Lord, but also houses, fields, and the walls of Jerusalem. (Leviticus, xxvii; Nehemiah, xii, 27.) At the Exodus from Egypt, the first born males in Israel, whether of man or beast, were sanctified to God, i.e., were consecrated or devoted to Him—the beasts for sacrifice, the children for redemption. (Exodus, xiii.) In Christian Ecclesiology C. is resolvable into (1) the dedication of persons or things to the service of God with appropriate ceremonies, (2) the formal declaration that in consequence of being devoted to God, they are now sacred. In this context, C. is understood to change, not the nature of the thing, but only the use of it; but with respect to the C. of the eucharistic bread and wine, Roman Catholics maintain that a complete change is effected

in the thing consecrated. The term C. is used in various special services: viz. of the consecrating of bishops, priests and deacons; and in the Church of Rome, of the consecration of altars, chalices, patens, etc., but specially of the consecrating of churches. Christianity had prevailed for some time before separate buildings were erected for divine worship; when separate buildings were erected, simple rites of C. followed, and then, by the time of Constantine, these rites had developed into numerous and imposing ceremonies. This is still the case in the Church of Rome.

In England, the legal effect of the C. of a church by a bishop is that none but the worship of the Established Church can be permitted within its walls or precincts. As to burial grounds see BURIAL ACTS.

Consecutive (Lat. *consequi*, to follow), a term in music applied to recurring intervals, especially to the progression of parallel fifths or octaves, which are forbidden by the strict rules of harmony in part-writing. There are certain exceptions in modern music. Consult Grove's *Dict. of Music*, i.

Consent. In criminal law proof of C. on a charge of rape would acquit the prisoner on that charge. C. is no defence to a charge under the Incest Act, 1908, nor to the abuse of a female lunatic, or to a charge of indecent assault on any young person under the age of thirteen. In the Scots law of contract, following the Rom. law of consensual contracts, some contracts may be binding by mere C. without other formalities. Such contracts include partnership agreements, sale, barter, location (hire), and mandatum (bailment).

Conservatism, Conservative Party, the name of one of the three chief British political parties. The name implies that the essential characteristic is that its purpose or tendency is to maintain and preserve existing institutions. It was first given by J. W. Croker in the *Quarterly Review*, Jan. 1833, as a more appropriate term than 'Tory' (*q.v.*). It was not at first welcomed by members of the party. The disruption of the Liberal party at Gladstone's first Home Rule Bill led first to the formation of the Liberal Unionist party, the name adopted by those Liberals who dissented from the policy; when these joined with the Cs. in Lord Salisbury's first government, the name 'Unionist' was used for both wings of the new party. In 1912 the two separate party organisations coalesced, and 'Unionist' became the formal accepted name for the

former 'Liberal Unionist' and 'Conservative' parties but with the grant of Dominion status to Ireland (*see* IRISH FREE STATE) the alternative name 'Unionist' has been dropped. The history of the modern C. P. begins approximately with the reorganisation of the Tory Party by Disraeli late in the forties of the last century. The C. P. are the lineal descendants of the Tory Party as re-modelled by Disraeli, who may be regarded as the founder of modern C., but as modified by the inclusion of Liberals under Joseph Chamberlain and the late Duke of Devonshire, who both refused to follow Gladstone on Irish Home Rule. This fusion of Liberal and Conservative is significant in that it tends to support the criticism that in some essentials, whether of foreign or domestic policy, there is no great difference between the two great historic parties, who seem to pass and re-pass each other in the course of legislative achievement (*see* further under POLITICAL PARTIES). The history of the Tories goes back to the time of the Civil War in the reign of Charles I., but it is only towards the end of the eighteenth century that the Party system begins to assume a form like that of to-day. The Tory Party of the eighteenth century was long in humiliating opposition, a consequence of the Jacobite leanings of its leader Viscount Bolingbroke. Branded for fifty years as Jacobites, the Tories were not favoured by Hanoverian sovereigns, whose First Minister was always a Whig. But during the American war the party was re-created, Tory and sovereign taking the common if illusory view that the American colonies should remain part of the British Empire. Thereafter for the next two decades, the outstanding features of Tory régime were the 'Six Acts,' passed like the modern D.O.R.A. (*q.v.*), to meet the difficult social conditions following Waterloo; and the Catholic Emancipation Act of 1828. Then came ten years of opposition until Peel led the Tory administration of 1842, with Gladstone as his lieutenant. It was on the rock of the Corn Laws that the Party finally foundered; Disraeli was opposed to the repeal of these laws and, with Derby, led the 'Young England' Party, the germ of the modern C. P. (*see* under BEACONSFIELD), and Peel was forced, in 1846, to embrace free trade; but eventually the Tory party turned against him over the Coercion of Ireland Bill, which was thrown out. With Gladstone, Peel then went over to Lord John Russell's group; the split was

complete; and Disraeli was left to reorganise the remains of the party. To Disraeli, who consistently supported Lord Ashley in his factory reforms, is due the marked progress in social legislation and the lead in Imperial policy, resulting in drawing the self-governing dominions into closer alliance with the mother country, which have been the salient features of C. in recent years. Disraeli's successors as leader of the C. P. were the Marquess of Salisbury (*q.v.*), Mr. (later Earl) Balfour (*q.v.*), Mr. Bonar Law (*q.v.*) and Mr. Stanley Baldwin (*q.v.*), the last-named being claimed to be more consciously imbued with the Disraelian tradition than any of his predecessors. The aims of the C. P. as stated by Disraeli



LORD BEACONSFIELD

are 'the preservation of our institutions, the maintenance of our empire, and the amelioration of the condition of the people.' In foreign policy 'Peace with Honour' is the slogan of the party, which claims to have done more than any other party in reducing armaments, and to have played a prominent part in the deliberations of the League of Nations. As to social conditions, the Housing Act of Mr. Neville Chamberlain, when Health Minister, is in the line of Conservative tradition, the first great Housing Act being that of Viscount Cross when Home Secretary. Pensions to widows and orphans, old age pensions for insured men and their wives at the age of sixty-five, and the extension of the franchise to men and women at twenty-one years of age subject only to residential qualification, are other legislative landmarks in the recent history of the party. In education, the Act of 1870 was a Liberal measure, but

Mr. W. E. Forster, the Minister responsible, declared that it could not have been passed without the support of the C. P. owing to the bitter opposition of Liberals like John Bright. The abolition of fees in primary schools, the substitution of inspection for examination, the abolition of payment by results (*see under EDUCATION*) were effected by Conservative Govs., and in 1902 the co-called Balfour Act, which made so marked an advance towards a co-ordinated system of national education in all its branches, was the work of the C. P. In agriculture, the C. P. claims credit for its de-rating measure, which reform was first outlined by Mr. Churchill's budget of 1928 (*see DE-RATING*). Finally by its characteristic policy of safeguarding (*q.v.*) the Party claims to have restored a measure of prosperity to the lace, the motoring and other industries (*see also PROTECTION*). The Party suffered a rebuff at the polls in 1924 on the issue of protection when the first Labour Gov. took office; but they were in office again eight months later, mainly through the adroit use made by their followers of the Zinovieff letter (*q.v.*) and the affair of the Campbell prosecution. In 1929, however, they met with a disastrous reversal of fortune at the general election of that year, the chief issue being the relief of unemployment. A contributory factor to their defeat was the lack of constructive effort implied in their much derided slogan, 'Safety First.'

Conservative Club. This was a Tory Club, first founded in London in 1840, with its headquarters at 74 St. James Street. Since 1832, associations known as 'Constitutional' or 'Conservative' multiplied throughout the country, and eight years later the first regular club was formed.

Conservatoire, or Conservatorio, a name originally given to schools founded on the Continent, especially for studying music and maintaining its purity (*Lat. conservare, to preserve*). The Fr. name is often used for the Italian 'Conservatorio,' the Ger. 'Conservatorium,' and Eng. schools of music also, while the form 'Conservatory' is used in U.S.A. The earliest of these institutes originated in Italy; they were primarily attached to some hospital or benevolent institution. In the modern sense they date from the sixteenth century. In 1808 Murat united the numerous different C. into the Reale Collegio di Musica for both sexes. In 1808 the Grand Conservatorio at Milan was established. The Ecole Royale de Chant et de Déclamation was founded at Paris (1784)

for training opera singers. During the Revolution the Institut National de Musique was erected (1793), the name changing to Conservatoire de Musique (1795). Among its most famous directors have been Sarrette (1784-1814), Cherubini (1822-42), Auber (1842-71), Ambroise Thomas (1871), Dubois (1896), and Fauré (1905). A still more famous continental institution is the Conservatorium at Leipzig, founded by Mendelssohn (1843), expressly for instrumental music. Other important European Cs. are at Prague (founded 1811), Vienna (1816), Brussels (1833), Cologne (1849), Munich, Stuttgart, and Berlin (founded by Joachim, 1869). Corresponding Eng. institutions are the Royal Academy of Music (founded 1822, incorporated by charter, 1830), Royal College of Music (1882), and the Guildhall (1880). The chief in U.S.A. is the National Conservatory of Music of America (New York, 1885). There are two in Boston (1867, 1870).

Conservators of the Peace, the predecessors of the modern justices of the peace, but invested with powers far inferior to the latter. They were the authority to take sureties for peace and good behaviour. Certain high functionaries were general C. *ex officio*, *e.g.* the King, the Lord Chancellor (*q.v.*), the judges of the Court of King's Bench, and the Master of the Rolls. Other officers were C. only in special places, *e.g.* the Common Pleas judges, and Barons of the Exchequer.

Consett, a tn. and eccles. parish (Consett Christchurch) of Durham, England, 12 m. from Durham. It has iron works and coal mines, Pop. 12,149.

Conshohocken, a borough of Montgomery county, Pennsylvania, U.S.A., on the Schuylkill R., 13 m. from Philadelphia. Founded in 1830, it was incorporated as a borough, 1852. It has large cotton, woollen, and rolling mills, foundries, furnaces, surgical instrument works, stone-quarries, steel-mills, and boiler-shops. Pop. 10,815.

Considérant, Victor-Prosper (1808-93), a Fr. socialist, and the chief apostle of Fourierism. He edited the *Phalange* and *Phalanstère*, journals setting forth their views. Having obtained financial assistance from an Englishman, Young, he established a socialist colony in the department Eure-et-Loire, 1832, but the experiment failed. He then founded the *Démocratique Pacifique*, 1845, for the purpose of promoting his views. In 1848 he was a member of the Constituent Assembly, and acted with the 'Mountain' party. Accused

of treason, C. fled to Belgium, 1849. Hewent thence to Texas, and founded a socialist community, La Réunion, near San Antonio, but the insurrection of the S. ruined this enterprise. He returned to France, 1869. Among his works are: *La destinée sociale*, 1834-38, dedicated to Louis-Philippe; *Débâcle de la politique*, 1836; *Principes du socialisme*, 1847; *Mexique Quatre lettres au maréchal Bazeine*, 1868. See Coignet's Life, 1895.

Consideration. All contracts not under seal require valuable C. to make them enforceable. The generally accepted legal definition of valuable C. is 'some right, interest, profit, or benefit accruing to one party, or some forbearance, detriment, loss, or responsibility given, suffered or undertaken by the other.' A specialty contract (*i.e.* one under seal) is said to require no C., because of the legal dogma that a deed imports C., a fiction which probably owes its origin to the peculiar sanctity that has attached to deeds (or 'charters' as they were once called) from the earliest days of the Eng. legal system. No simple contract can be enforced unless supported by valuable C. For example, A promises verbally or in writing not under seal to give B £100 for no C.; B cannot enforce the promise against A. Again A owes B £100, and pays him £75 which B accepts 'in full satisfaction.' B can, nonetheless, sue A for the remaining £25, though it would be otherwise if A had paid £75 and given in addition some article, however trifling, by way of C. Cs. are sometimes divided into valuable and good Cs. A good C. is that of natural affection between blood-relations, but it is not sufficient to maintain the validity of a conveyance of property against the claim of a subsequent purchaser for value. For example, if a man after his marriage settles freehold houses upon his wife and children in consideration of his natural affection and then sells the property for money, the wife and children will be excluded by the purchaser. Such a settlement is in law called 'voluntary.' But a settlement of property made in consideration of a future marriage which afterwards takes place is a settlement for valuable and not good C., and such a settlement may be made after marriage, if made pursuant to a written agreement entered into before marriage. C. need not be adequate to the promise offered by the other party to a contract, but must be of some value; it must be legal; *e.g.* lending money to gamble in differences on the Stock Exchange could not be recovered (*see* under DIFFERENCES);

and it must not be past, but must be either present or future (*see also* under EXECUTORY). As a corollary of the above rules it is to be noted that neither motive nor moral obligation amounts to C., therefore, if A saves B's life and B afterwards promises A £100 out of gratitude, A cannot recover the money from B or out of B's estate. Lastly C. must 'move from the promisee,' which may be differently expressed by saying that no stranger to the C. can take advantage of a contract though made for his benefit (*see* under CONTRACT). *See* Anson, *Law of Contract*.

Consignment, a commercial term used of the despatching of goods for delivery to a purchaser; it is particularly used in the shipping of goods; the person despatching goods is the 'consignor,' and the person to whom they are despatched is the 'consignee.'

Consistory Courts, which were founded by William I., now exist in every diocese of England. They are ecclesiastical courts controlled by chancellors appointed by a bishop or archbishop. Their business is now almost restricted to the dispensing of faculties for which application is still made according to forensic procedure. Until the act of 1858 they assisted in exercising jurisdiction over testamentary and matrimonial disputes. By an Act of 1892 a clergyman accused of immorality may be tried in a consistory court.

Consolidated Fund. The fund of the National Exchequer comprising the produce of the extraordinary revenues of the crown. The fund was so named from the fact that it was consolidated out of what previously had constituted distinct funds—the aggregate, the general, and the South Sea funds. It was first formed in 1786, and afterwards by the 56 Geo. III. c. 98, the Irish exchequer was amalgamated with it, and it then became the C. F. of the United Kingdom, the whole fund being pledged in the first place for the payment of the interest of the National Debt, and then in reduction of the capital. But before any part of the revenue can be so appropriated, parliament raises out of it an annual sum for the maintenance of the royal household and the civil list. The extraordinary revenue which goes to make up the C. F. is either *permanent* or *annual*. The annual revenue is supplied by taxes annually, and in theory at least, temporarily imposed, *e.g.* income tax; and it may vary from year to year. The revenue paid into the C. F. may be said to comprise the following: Customs (*q.v.*), excise (*q.v.*), death duties (*q.v.*), stamp duties, land tax, inhabited house

duty, income tax, income from Crown lands (*q.v.*), Suez Canal shares, Post-Office receipts, and miscellaneous heads of taxation. These various taxes are all paid to the Gov.'s credit at the Bank of England, and may not be paid out except by statutory authority. See Anson, *Law of the Constitution*.

Consolidated Goldfields of South Africa. This company was formed in 1892 by the amalgamation of other similar undertakings, of which Cecil Rhodes (*q.v.*) was the leading spirit. It originated as the Goldfields of South Africa Company, formed by Cecil Rhodes and Charles Rudd to exploit concessions given by Lobengula, the famous Matabele king. Lord Harris is the present Chairman, and the head offices are in London. There are subsidiary companies, the Goldfields Rhodesian Development Company and the Goldfields American Development Company, in both of which the C. G. of S. A. holds the shares.

Consolidated School is the term applied in the U.S.A. to define a school which has been formed as the outcome of the union of two or more small rural districts. The practice of consolidation had its rise about the middle of the nineteenth century and was first noticed in the States of New York and Mass. after the passing of laws legalising the expenditure of public funds for the carrying of children to and from school. There are now some 15,000 of these schools throughout the States, varying in size from the small village school to schools capable of accommodating several hundreds of pupils.

Consolidation Acts, or Consolidation of Statutes, a species of codification, or digest. The avowed object of a C. A. is to incorporate in one repealing Act all the existing law on any one topic, together with necessary amendments, but otherwise without making any change in the pre-existing law whether statute or common law. Many C. A., however, either from faults inherent in draughtsmanship, or from the difficulty of giving adequate expression to ill-considered amendments, fall short of accomplishing this ideal; and, further, many sections being really based upon the *rationes decidendi* (principles of decision) of reported cases either do not give effect to the spirit of the decision, or fail of universal application, either because the decision was appropriate only to the facts of the particular case or because the necessary elimination of those facts in the section render the statutory language ambiguous. Examples of C. A. are the Criminal Law Con-

solidation Acts, 1861, Bills of Exchange Act, 1882, The Sale of Goods Act, 1893; Companies (Consolidation) Act, 1908; Children Act, 1908.

Consols, a term commonly used to denote a considerable portion of the national debt of Great Britain, but more correctly known as the three per cent. consolidated annuities (*see* under CONSOLIDATED FUND). An Act passed in 1731 consolidated certain perpetual and lottery annuities bearing interest at 3 per cent., and these consolidated annuities formed the basis of the Cs. The interest on Cs. was reduced by an Act of 1888 to 2½ per cent., and in 1905 it was further reduced to 2¼ per cent. The value of these Cs. when first issued against existing securities was £9,127,812, but this amount was increased later to over £100,000,000. By 1888 this figure had been reduced by purchase in the market and by conversions into terminable annuities to £322,681,000. In 1889, Mr. Goschen, the Chancellor of the Exchequer, redeemed this large amount of stock, and the old three per cent. C. which for so long had been looked upon as the standard security of the London market are fading into the limbo of things forgotten. Since the Great War C. have formed but a small part of the total national debt of Great Britain. The term 'C.' has in late years been applied to certain other securities, such as New Zealand five per cent. Consols. These are so named by dealers on the exchange because the word is less cumbersome than Consolidated Stock.

Consonance, in music, is applied to a combination of notes which can be sounded together and which produce an agreeable effect, as, for example, the octave.

Consort (Lat. *consors*, partner, sharing in), literally one who throws in his lot (*sors*) with another. In Eng. constitutional law the term is applied to the husband or wife of the reigning sovereign, viewed in a public capacity, as sharing to a certain extent in the royal prerogative. The title has been familiar in England since it was conferred on Prince Albert in 1857 by letters patent. A consort is a subject of the sovereign, and may be guilty of treason against the latter. A queen-consort is entirely independent of her husband's control, and is regarded in legal proceedings as a *feme-sole*. She has her particular revenue, and certain exemptions and privileges.

Conspicuous Gallantry Medal. Instituted for award to men of the Royal Navy and Royal Marines who performed exceptional acts of bravery

in action during the Crimean War. In 1874 it was re-instituted for award for similar purposes and made applicable to any campaign. It is virtually the naval counterpart of the military Distinguished Conduct Medal.

Conspicuous Service Cross, a British decoration, instituted in 1901, to be conferred on warrant and subordinate officers for gallantry and devotion before the enemy. The first recipients of the cross were gazetted on July 2, 1901.

Conspiracy may be categorically defined in law as an agreement between two or more persons to do an unlawful act or to do a lawful act by unlawful means. Much obscurity has always characterised what seems now to be definitely regarded as a substantive offence. The difficulty in principle lay in the confusion arising from the fact that, generally speaking, nothing can be unlawful, civilly or criminally, in two or more persons which would not be unlawful if done by one person, or if done without such previous agreement. The substantive wrong of C. was really developed as an 'action on the case' (*q.v.*) or, in other words, was inducted from the consequential damage generally following on a conspiratorial agreement. Something more was required, however, than the mere fact of damage, for damage *sine injuria* (*q.v.*) is necessarily no wrong, and the injurious element was deduced generally from the fact that such agreements as were held to be Cs. were characterised by some ultimate malicious object or wrongful means of execution. While, therefore, defining C. in the above manner, it must always be remembered that to agree to persuade a man, *without unlawful means*, to do something he has a right to do, or to abstain from doing what he has a right to abstain from doing, can never be actionable, although done to the prejudice of a third person, and although done with a malicious motive. C. as a criminal offence is classed by text writers under three heads: (1) Where the end is in itself a crime; (2) where the means are unlawful but the end is lawful; (3) where the end is to injure a third person or a class though, if the wrong were inflicted by a single individual, a civil wrong only and not a crime would be committed. The whole gist of C. is the *combination*, so that a single person could only be convicted if his fellow conspirators were either dead, unknown, or not in custody for some reason or other. It is now settled law that an agreement by two or more persons to do certain acts may be criminal, although those acts

if done by one person might not render him liable to any proceedings whatever. It is clear, *e.g.* that numbers may coerce and intimidate where a single individual could effect nothing. In regard to (1) above, a C. to commit murder is dealt with by a statute which makes it punishable with penal servitude up to ten years. Unlawful interference with trade by combinations and especially by combinations of workmen against employers form the most striking example of Cs. under (2). Workmen may lawfully combine to protect their interest, but may not, theoretically at all events, interfere with the right of such of their class who do not wish to join the combination. The Conspiracy and Protection of Property Act, 1875, expressly makes punishable as crimes by imprisonment not exceeding three months, or a penalty not exceeding £20: (a) coercion of a person by violence or intimidation manifested either towards himself, his wife, or children, or his property; (b) persistently following a person about from place to place; (c) hiding his tools or other property; (d) 'picketing,' *i.e.* watching or besetting a person at his house or place of business, or for two or more persons following a person about in the streets in a disorderly manner. This has been altered by the Trades Disputes Act, 1906, which allows 'peaceful picketing' for the purpose of communicating information, by persons acting in furtherance of a trade dispute; (e) for an employee of a gas or water company wilfully and maliciously to break his contract of service with the knowledge that such breach will cause a failure of gas or water; (f) wilful or malicious breach of contract endangering human life, or tending to cause serious bodily injury, or expose valuable property to destruction. By the combined operation of section 3 of the Act of 1875 and section 1 of the Act of 1906, trade disputes stand above the ordinary law in some of their probable consequences; for if in connection with such a dispute, two or more persons combine to do an act which if done by a single individual would not be punishable criminally, they will not, merely because of their number, be liable either to criminal proceedings or to a civil action. See Pollock's *Torts*; Russell, *On Crimes*; (see also COMBINATION, LAWS OF).

Constable (etymology apparently comes *stabuli*, a kind of master of the horse), a word of widely different meanings in different countries and at different periods in the same country: (1) In France in the Middle Ages the C. of France had the chief

command of the army and jurisdiction in military offences; he also had the control of all matters relating to chivalry. One of the most celebrated holders of the office was Bertrand du Guesclin. The office was finally abolished in 1814. (2) In England the Lord High Constable, appointed after the Conquest as an officer of the crown, had duties not dissimilar to those of the C. of France. For centuries the office was hereditary to the families of the Earls of Hereford and Essex, and afterwards the Dukes of Buckingham. The office has been extinct since the attainder (*q.v.*) of the Duke of Buckingham in the reign of Henry VIII., although it has been revived *ad hoc* on such special occasions as a coronation, when the Earl Marshal assumes the functions. (3) High Cs. were appointed in England from the reign of Henry VII. They were chosen at the court-meets of the hundred over which they presided. They were appointed to keep the peace in their several districts, but are now virtually abolished, being only appointed when the county justices deem it advisable. (4) Petty or parish Cs. were appointed to maintain the peace in manors, vills, and tithings when increasing population made the duty too onerous for high Cs. alone. Parish Cs. are practically abolished by 35. 36 Vict. c. 92, which established the county constabulary, and provides that parish Cs. should only be appointed by the magistrates of general or quarter sessions when deemed necessary. (5) Special Cs. were often sworn in by justices when disturbances existed or were apprehended. The necessity for both high and petty Cs. has been obviated to a great extent by the institution of (6) the modern police force, which dates from the Metropolitan Police Acts of 1831 and 1840, and, so far as boroughs are concerned, the Municipal Reform Act, 1835 (*see* POLICE). The police force of each county is under the control of a chief C., who may appoint Cs. and superintendents, subject to the approval of the justices in petty sessions. The appointment of borough Cs. is now regulated by the Municipal Corporations Act, 1882.

Constable, Archibald, (c. 1774–1827), a famous Scottish publisher, founder of the *Edinburgh Review* (1802), which he managed for twenty-four years. He published Scott's first original work in 1805, and gave him £1000 for *Marmion* (1807). Constable & Co. also published most of Scott's prose works from 1813–26. In 1825 C. failed for a sum of about £250,000. This failure, together with that of the printers Ballantyne & Co., involved

Scott in the heavy loss of £120,000. C. wrote a *Memoir of George Heriot*, and edited a *Chronicle of Fife, being the Diary of John Lamont of Newton from 1649–72* (1810). He purchased the copyright of the *Scots Magazine*, 1801; copyright and stock of the *Encyclopædia Britannica*, 1812. *See* A. Constable and his *Literary Correspondents*, by his son, Thomas, 1873; Lockhart's *Life of Scott*.

Constable, Henry (1562–1613), an Eng. poet, graduated from Cambridge, 1580. He early turned Rom. Catholic, and spent much of his time abroad in Paris. In 1598 he was trying to form a new Eng. Catholic college in Paris. C. came to London, 1603, and was confined in the Tower for about a year. He was a friend of Sidney, Harrington, and Bolton. His *Diana: the Praises of his Mistress in certaine sweete sonnets* by H. C., was published, 1592, and is a series of twenty-three sonnets, praised by Jonson and others. C. also wrote sixteen *Spiritual Sonnettes to the Honour of God and his Sayntes*, by H. C., and *The Shepheard's Song of Venus and Adonis*, in *England's Helicon*, 1600. Hazlitt collected his works in 1859. *See* Warton, *History of English Poetry*; Corser's *Collectanea*, iv.

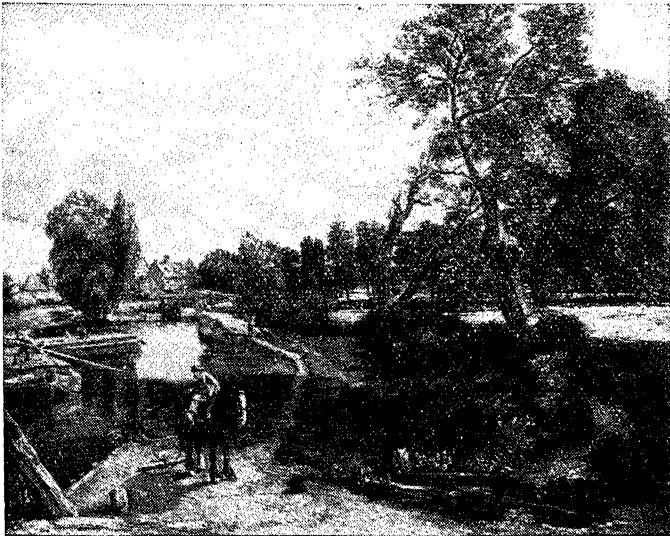
Constable John (1776–1837), Eng. landscape painter, was the son of a mill-owner of East Bergholt, Suf-



JOHN CONSTABLE

folk. Even in the days when he attended Dedham grammar school all his spare hours were devoted to painting. Thus, although he was at first sent to work in the windmill, his father soon yielded to his passion for art, which had been fostered by his friendship with Sir George Beaumont, and by his study of Claude's 'Hagar and Ishmael,' and in 1795 allowed him to go to London to consult a landscape painter, Farington by name.

for his 'White Horse.' His financial position was finally established in 1823 by an inheritance of £20,000 from Mr. Bicknell, but any gratification he might derive from this gift was at once swallowed up in the inconsolable grief which he felt at the loss of his wife in the same year. He never recovered from the shock of her death, and his own death in 1837 was due as much to nervous depression as to any physical weakness. The great



FLATFORD MILL
(Constable)

The final result of this visit, during which he was taught etching, was that in 1799 he entered the Royal Academy Schools, and definitely embraced the career of painting. Three years later he exhibited for the first time at the Academy. In 1816 he married Mary Bicknell, after a weary period of waiting due to the opposition of her relatives. The year 1819 is important not only as the date of his election as an associate of the Royal Academy, but also as that in which he received £8000 in legacies—a timely gift which considerably relieved his monetary anxieties. Two years later he gained a gold medal at the Paris Salon for his splendid picture 'The Hay Wain,' and in 1825 he won another at the Lille Exhibition

part of his life had been spent in London, latterly at Hampstead. It is possible to study his work in the national collections at Trafalgar Square, South Kensington, and Millbank. Like most young painters, he began by observing 'truth at second hand,' copying Claude and Ruysdael and imitating the technique of Girtin, Gainsborough, and the old Dutch masters. This period of apprenticeship lasted till 1806, the year of his visit to the Eng. Lakes. The altarpiece which he executed in 1804 for Brantham Church is in the manner of Benjamin West, at that time president of the Royal Academy, and a kind patron to C. From 1806 to 1809 he was for the most part engaged in copying portraits by Hoppner and

Reynolds, and seriously studied the science of oil-painting, but the turning-point in his career was his exhibition of 'Dedham Vale' in 1811, in which he first gave his talent free scope and began to develop his striking originality. C. was thus a long while reaching his artistic maturity. His range of subjects was limited, being mostly restricted to the scenery of Suffolk, Salisbury, Hampstead, and Brighton, but he really knew the old mills and rustic bridges, the great trees and the torrents, the corn-fields, and above all the skies that he depicted. His experience as a miller must have taught him to study the clouds: at least he is unequalled in his presentation of the sky in April before a heavy shower, or of the lowering clouds that presage the storm's approach. Truthfulness is the salient feature in his detail, his broad composition and his atmospheric effects. His pictures seem to breathe the life of the farmyard and the fields. Their fresh, natural colours are not the least of their merits. In his vivid tones C. was following the example of Rubens and Claude, so that it is untrue to regard him, as is not unfrequently done, in the light of an opponent of the old masters. It seems that the Impressionist school learnt from C. the fine effects of splashes of warm colour. But C.'s reputation rests not on the peculiarities of his technique, but on his faithful portrayal of the beauties of Eng. landscape and rustic life, and especially of the light and shade effects of rain clouds through which the sun's rays are doing their best to penetrate. It is a pity that Ruskin in his admiration of Turner and the pre-Raphaelites should have been blinded to the true greatness of C. The mezzotints of David Lucas (1855) are among the finest engravings after C. Among his many pictures are: 'The Leaping Horse,' 1825, perhaps his masterpiece; 'The Cornfield,' 1827; 'Dedham Vale,' 1828; 'Salisbury Cathedral,' 1831; 'The Valley Farm,' 1835; and 'Hadleigh Castle,' 1829.

Constance (Ger. Konstanz), a Ger. town in the grand duchy of Baden, stands on the S. side of the lake of the same name, where the R. Rhine flows out of it about 30 m. E. of Schaffhausen. The town is a picturesque one, the cathedral, which was built about the eleventh century, being famous. Here some of the sittings of the council of C., 1414-18, took place, and others were held in the Kaufhaus—Jerome of Prague and John Huss being condemned at this council were burnt at the stake in 1416, and a boulder 10 minutes W. of the town marks the spot. The

Dominican Convent, now a hotel, and the town hall are also noteworthy. The market-place contains the house where Frederick Barbarossa signed the peace of C. in 1183. There are iron and textile industries and a very considerable trade principally with Switzerland. It is connected with one of its suburbs by a bridge crossing the Rhine. C. was in very early times an important town, being the see of a bishop—it belonged to Austria until 1805. Pop. 31,250.

Constance, Council of. This council was called together for the purpose of reforming the church. The Emperor Sigismund and Pope John XXIII. with many church dignitaries and men holding high office in the state sat on this council, which lasted from 1414-18. There were at the time three popes, Gregory XII. and Benedict XIII. sharing their power with John, and as the object of the council was to secure unity in the church the only course open was to do away with this division of rule, which was effected by the deposition of all three and by the election of Martin V. The general reform, however, which had been hoped for, was not brought about, although it was decreed that councils were to be called periodically and that in the case of schism the final decision should lie with them. Another work of this council was to condemn to death John Huss and Jerome of Prague.

Constance, Lake (Ger. Bodensee), lies between Switzerland, Germany, and Austria. It is about 45 m. long, 8 m. broad, and 1305 ft. above sea-level. At its N.W. extremity it divides into two, the northern branch being called the Ueberlingen Lake and the southern the Untersee. This lake has several tributaries, the largest one being the Rhone which flows right through it, while among its smaller one are the Argen, Schussen, and the Aach. Lake C. sometimes rises considerably above its usual height owing to the melting snow, but it is hardly ever frozen over. There are two islands in the lake, Reichenau and Meinau, and several towns on its banks, the chief being Bregenz, Lindau, Ueberlingen, and C. There is also a regular steam-boat service on the lake.

Constans I., Flavius Julius (A.D. 337-50), a Rom. emperor, youngest son of Constantine the Great and Fausta (c. A.D. 320-50). Made Caesar in 333, he became joint emperor with his brothers, Constantine II. and Constantius II., in 337, Italy, Africa, and W. Illyricum falling to his share. In 340 he defeated Constantine, who fell in battle near Aquileia, thus becoming master of the whole

W. He favoured Athanasius, who was proscribed by the Arians, but was weak and depraved in character. He was killed while hunting in Gaul by an emissary of the usurper, Magnentius. See Gibbon, *Decline and Fall of the Roman Empire*; Le Beau, *Histoire du Bas-Empire*.

Constans II., Flavius Heraclius, elder son of Constantine III. (A.D. 630-68), emperor of the E., 641-68. He lost Syria, Cyprus, Rhodes, and Africa to the Saracens and Arabs, being defeated by the latter at sea, off Lycia, 655. He also fought unsuccessfully against the Slavs around the R. Danube, and lost N. Italy to the Lombards, 641. His attempts to reconquer Italy (662), and make Rome the empire's capital, were futile. He favoured the Monothelites, and to end controversy between them and the orthodox issued an edict forbidding all religious discussion. C. was generally hated, as cruel and avaricious, and was probably assassinated. His son Constantine IV. (Pogonatus) succeeded him. See Abulfeda, *Annales*.

Constant, in mathematics, a quantity that never changes its value throughout an investigation or process (in contradistinction to 'variable' quantities), often used, as in the differential calculus, to determine a series of changeable values. An absolute C. is one whose value is exactly the same under all circumstances (for example, any cardinal number); an arbitrary C. is an undetermined C. in a differential equation, keeping the desired value assigned to it unchanged during all changes in the value of the variables. Examples: Circular C., C. of aberration, gravitation, tidal Cs.

Constant, Jean Joseph Benjamin (1845-1902), a Fr. painter and writer on art. He studied under Cabanel. Quite early he exhibited in the Salon; his 'Hamlet' was bought (1869) by the Fr. Gov. He began to paint Oriental subjects during travels in Spain and Morocco; his best Eastern pictures, the 'Prisoners of Morocco' (1878), now in the Bordeaux Museum, and 'The Last Rebels,' now in the Luxembourg, Paris, are sensuous in feeling and colour. He decorated later the ceiling in the Opéra Comique and the ceiling of the Hôtel de Ville, Paris; and dramatic panels in the New Sorbonne. There is a fine series of his portraits, for which he was highly esteemed, in the Toulouse Museum. He painted a portrait of Queen Victoria which was exhibited at the Royal Academy in the year of her death (1901). Among his works are: 'Samson et Dalila,' 1872; 'Mohammed II.,' 1876; 'Le Jour

des Funérailles,' 1889; and portraits of M. Hanotaux, 1898; Pope Leo XIII., M. de Blowitz (1902), and Queen Alexandra (1901).

Constant de Rebecque, Henri Benjamin (1767-1830), Fr. statesman and philosopher, was b. at Lausanne. The influence of Mme. de Staël and Talleyrand may be traced in his *Mélanges de Littérature et de Politique*, 1829. C. had to leave France in 1802, owing to the fact



HENRI BENJAMIN CONSTANT

that he was at that time a constitutional republican, and therefore an opponent of Napoleon; but he modified his views, and in 1814 returned to support constitutional monarchy. His chief work is *De la Religion*, 1824-30, in five volumes; he wrote also *Cours de Politique constitutionnelle*, 1817-20, in four volumes. His celebrated novel *Adolphe* was first published in 1816. See G. Ripley's *Specimens of Foreign Standard Literature*, 1838-42; *Biography* in Fr. by Ricard, 1888; and *Journal Intime de B. Constant*, 1894.

Constanta, Constantza, or Kustenji, a seaport on the Black Sea, at E. end of Trajan's Wall, is the principal port of Roumania, and exports large quantities of grain, petroleum, and live stock. It has a fine harbour, opened in Oct. 1910. There are nearly three miles of quays, and a pipe line runs to the Roumanian oil fields. The commerce of the port amounted

to 2,000,000 tons in 1927. Tomi, the scene of Ovid's exile, is near. A battle was fought between Russians and Turks at C. in 1854, and it was severely damaged in the Great War, being occupied by a Germano-Bulgar army in Oct. 1916. Pop. 50,000.

Constantia, a tn. in Cape Colony lying under Table Mt. Originally an old Dutch wine farm and founded by Simon van der Stel about 1690. A famous Cape wine derives its name from this place. Pop. 3800.

Constantina, a tn. in the prov. of Seville in Spain. It has lead mines, and the trade is chiefly in timber and cork. Pop. 10,000.

Constantine, the cap. of the prov. of C. in the E. of Algeria. The town is picturesquely situated at an altitude of 2150 ft. above sea-level, on an entirely isolated chalk rock, which is washed on three sides by a stream flowing through a deep ravine. C. consists of the European quarter and the old Arab quarter, which has preserved an intense local colour. The work of the native saddlers and shoemakers is famous as also the woollen stuffs made here. It has railway communication with Bona, Philippeville, Algiers, Biskra, Tebessa and Tunis. C.—in Rom. times called 'Cirta'—was a city of Massylii in Numidia; and the capital of Syphax and of Massinissa and his successors. In the Jugurthine War Adherbal was besieged here by Jugurtha and slain in 112 B.C., and the town compelled to surrender. It was destroyed in 311 A.D., but was rebuilt by Constantine the Great in 312; was taken by the Arabs in 710, and by the Fr. in 1837. The pop. of the tn. is 93,730, of whom 44,450 are Europeans; of the dept. 657,160, of whom 69,370 are E.

Constantine, Nikolaevitch (1827-92), Grand-duke of Russia, was the second son of Czar Nicholas I. He commanded the Russian fleet in the Baltic during the Crimean War (1854), and as a leader of the national party opposed the concessions granted to the allied forces of the Eng., Fr., Sardinians, and Turks. In 1862, when the Polish insurrection occurred, he was appointed viceroy of Poland; and in 1865 and 1878 was made president of the Council of the Empire, but was deprived of his offices in 1881 because of his supposed intrigues with the revolutionists.

Constantine, Pope (708-715), was elected to the papal chair in 708. He journeyed to Constantinople to confirm the decrees of the Quinisextan Council at the invitation of Justinian II. See *Nouvelle Biographie Universelle*, 1852-66.

Constantinus, a Roman serving as a common soldier in Britain at the time of Honorius (A.D. 395-423). His troops proclaimed him emperor instead of Honorius, A.D. 407, and crossing to Gaul they captured it almost entirely. Honorius acknowledged him as emperor in 408, to win his support against the Goths. C. then advanced into Italy itself, hoping to depose Honorius. The rebellion of his general, Gerontius, compelled him to return to Gaul, where Honorius' general and son-in-law Constantius defeated both at Arles. C. was executed by Honorius, and the latter gave up Britain as part of his empire. See Tillemont, *Histoire des Empereurs*; Jornandes, *De Rebus Geticis*.

Constantinus I., Flavius Valerius Aurelius (Constantine the Great) (c. A.D. 270-337), son of Constantius Chlorus and Helena, first Christian emperor of Rome (c. 306-37). He served under Diocletian in the famous Egyptian expedition (296), and under Galerius in the Persian War, early becoming a favourite with the army as an able, brave, and good soldier, and an object of envy to Galerius. C. joined his father on the expedition against the Persians, and was proclaimed emperor in York by the legions on his father's death there. Galerius only granted him the title 'Cæsar,' reserving 'Augustus' for his own son, Severus. In 307 Constantine married Maximian's daughter, Fausta, but in 309 he put his father-in-law to death for plotting against him. Galerius died, 311; 312, Constantine marched against Maxentius, an aspirant to the Roman Empire, who was thrice defeated in Italy and finally drowned in the Tiber while trying to escape. According to legend, Constantine was converted about this time by the apparition of a cross in the sky: *Hoc signo vinces* (by this sign shalt thou conquer). Being now supreme in the West, he promoted order and prosperity among his subjects, and encouraged Christianity. In 323 he defeated Licinius, another aspirant to the Roman Empire once near Adrianople, and again opposite Byzantium, becoming sole emperor of the whole empire. In 325 he assembled the first general council at Nicæa, at which Arianism was condemned and a famous Catholic creed adopted (Nicene). Constantine transferred his capital from Ilmo to Byzantium about 328, naming the town after himself 'Constantinople.' There is much discussion as to his Christianity or Paganism. See Gibbon's *Decline and Fall*; Eusebius, *De Vita Constantini*; Vogt, *Histoire Constantinienne Magna*, 1720; Fletcher's *Life*, 1852; Mauso's *Leben*, 1817;

Burckhardt, *Die Zeit Konstantius des Grossen*, 1853; Firth's *Constantine the Great*, 1905; Bury's *Later Roman Empire*.

Constantine II., *see* CONSTANS I.

Constantine III., son of the Emperor Heraclius. He succeeded in 641 and died in the same year. His short reign was full of disorder and constant internal strife. His death is supposed to have been due to the hatred of his step-mother, who is alleged to have poisoned him.

Constantine IV. (668-685), son of Constans II. The earlier part of his reign was occupied in a campaign in Sicily, where a usurper had been declared emperor. Immediately after he had successfully put an end to this trouble, he was occupied in a struggle with the Arabs, who were finally forced to sue for terms. Nevertheless, although successful in these two ventures, he was unable to prevent the settlement of the Bulgars and the setting up of a Bulgar kingdom (679).

Constantine V., Copronymus (740-775), a son of Leo III, the Iconoclast. A far-seeing and capable emperor, who did much to encourage trade, restore prosperity, and strengthen the empire. Nevertheless, owing to his religious convictions and his ceaseless persecution of the monks, he is generally described by contemporaries as an iniquitous and harsh king. He caused the iconoclastic doctrines to be upheld throughout the empire, and so caused the defection of the papacy, which from this time ceases to be dependent upon the emperors, and looks for help rather to the West and the Franks. He engaged in campaigns against the Arabs, Avars, Slavs, and Bulgars. Whilst pursuing the latter campaign he was taken ill and died.

Constantine VI. (780-97), the last of the Isaurian emperors. He succeeded at the age of ten, and the empire for the next few years was ruled by Irene, the empress-mother. His mother continued to rule after C. had come of age, and although he seized and imprisoned her, nevertheless she again became powerful, and caused C. to be seized and blinded. His reign was disastrous, and during it the Arabs and Bulgars won many successes.

Constantine VII., Flavius Porphyrogenitus (905-59), Emperor of the East, was the son of Leo VI. by his concubine Ioe. His father had great difficulty in obtaining recognition of his legitimacy. During the early part of his reign the empire was administered by the admiral Lecapenus, with the influence of Ioe to support him. Finally Lecapenus was driven into a monastery, and C. obtained real power. He was not unpopular,

and his reign on the whole was a good one. He wrote a number of books, and from these we obtain much of our information on this period. His *De Administrando Imperio* was written to aid his son, Romanus, in the government of the empire. By this same son he was poisoned.

Constantine VIII., a title bestowed sometimes on one of the colleagues of Constantine VII., but generally on the emperor who ruled from 1025-1028. He was the colleague of Basil II., and devoted himself to a life of pleasure, giving very little heed to the affairs of state.

Constantine IX. (1042-54), an old warrior of the Eastern empire who owed his elevation to the purple to Zoe, the widow of Romanus III., whom he married. He neglected the defence of the empire, and spent huge sums in erecting magnificent buildings. During his reign the hold of the East in Italy was practically lost, owing to the conquest of Lombardy by the Normans.

Constantine X. (1059-67), an incompetent emperor who failed to justify the hopes that had been placed in him when he succeeded. During his period of rule the empire was fiercely attacked by the Turks under Alp Arslan and by many of the hill tribes. C. spent the greater part of his time in devotion to philosophic trifles, and to the utter neglect of the empire. The last hold of the empire on Italy was lost in this reign by the capture of Bari.

Constantine I. (1868-1923), King of the Hellenes, b. at Athens, eldest son of King George I. and of Olga, dau. of the Russian Grand Duke Constantine. As Duke of Sparta, he was trained in Ger. regiments, studying at Leipzig and at the Prussian Staff College. In 1889 he married Sophia Dorothea, sister of the Emperor William II. of Germany. For the disastrous result of the Greek campaign in Thessaly, 1897, C. as generalissimo was held responsible: nevertheless he became commander-in-chief, and so remained till 1909; when the Military League compelled his retirement, and he went to Paris. Upon the rise of Venizelos, 1910, C., recalled, was made Inspector-General and in 1912-13 he successfully commanded the forces in Macedonia. The assassination of his father, March 18, 1913, raised C. to the throne. He was successful against Turks and Bulgarians in Macedonia and Thrace; and before the year ended, his dominions were double those of his father in area. He remained neutral in the Great War, but with such 'benevolence' toward the Central Powers that Venizelos resigned, March 1915,

coming back, however, with a large parliamentary majority. When, in May 1916, Fort Rupel, commanding Struma Pass, was surrendered to Bulgaria, the Allies began action which ended in June 1917 in C.'s expulsion. After three years in Switzerland, he was recalled by plebiscite, and returned, Dec. 1920. He prosecuted in Asia Minor a campaign that ended disastrously, Sept. 1922. A year later there was an insurrection in the army, and C. abdicated in favour of his son George—retiring to Palermo; where he *d.* suddenly of cerebral hemorrhage, Jan. 11, 1923.

sidered separately. These are: to the N. of the Golden Horn, Galata and Pera, with Tophane; to the E. of the Bosphorus, in Asia, Scutari and Kadikoi. Galata, of which the chief ornament is a lighthouse, is the great shipping, mercantile, and banking quarter, and was not united to C. until after 1453. Pera is the European residential quarter, and here the diplomatists gather. Tophane is, or was, important for the cannon-foundry from which it derives its name. Scutari (*q.v.*) is an important commercial and industrial centre. The city of C. is excellently situated, more advantageously, perhaps, than



CONSTANTINOPLE

(From a sixteenth century print)

Constantinople ('Turkish Stambul, Istambul, anct. Gk. Κωνσταντινούπολις, 'the city of Constantine'), until Oct. 13, 1923, cap. Turkey, when it was superseded by Angora. The city stands on a hilly promontory of triangular shape, having the Sea of Marmora and the Bosphorus on the S. and E., and on the N. the Golden Horn, an arm of the Bosphorus. It is thus surrounded by water on all sides but the W., where a strong wall shuts the city off from the mainland. Like Rome, C. is a city built on seven hills, six of them being separated portions of one long ridge. As in the case of all great cities, C. has spread far beyond its original bounds, and may be said to include towns originally quite separate from itself. The name C. is generally reserved for the part built on the promontory above described, and the suburbs are con-

any European city but Naples. From the outside its appearance is most picturesque and imposing. At the taking of C. most of the churches were destroyed, and mosques were erected in the most prominent situations. Cupolas and minarets, with graceful curves and soaring spires combine with lofty cypresses to give the city an air of unique grace, and to invest it with the mysterious glamour of the oriental world. Within, however, the appearance is not so pleasing. The streets form a labyrinth of dirty, crooked, and ill-paved alleys, while most of the houses are low and are built of wood or rough stone. During the last seventy years the aspect of things has become much more European. The streets, under western influence, have been widened and improved, lighting at night is common, and a European style of

building has been introduced. Cabs and electric trains are to be seen in most parts, while the old camel service has entirely disappeared. The dress of the people has changed in the same direction. The streets are generally dull in appearance, almost all animation being concentrated in the bazaars. Almost all the important architectural and antiquarian monuments of C. are to be found in the city proper. First and foremost amongst these comes the church of St. Sophia (*Ἁγία Σοφία*, Holy Wisdom), erected by Constantine, and rebuilt with additional magnificence by Theodosius (415) and Justinian (538-68). Though necessary repairs have of course been executed, it is the church of Justinian that we now have. The exterior appearance of the church is disappointing, but inside it is the most magnificent creation of Byzantine art. The great oval-ended nave is 260 ft. long by 107 ft. wide, the central square being bounded by four huge piers, each 25 ft. square. These are connected by semi-circular arches, and support a dome 107 ft. in diameter. E. and W. are other great semi-circular spaces, each crowned with a dome. The ornament is extravagant in its beauty. Marbles of various hues are arranged to form intricate patterns, and mosaics appear here and there uniting the marbles. After the capture of the city by the Turks, St. Sophia was turned into a mosque, and its Christian ornaments removed or covered up. Some twenty churches shared the same fate. Of these that of SS. Sergius and Bacchus may be named as interesting early Byzantine monuments. From St. Sophia many other mosques were imitated, and it may be said to inaugurate a fresh type of architecture for these buildings. The greatest of the imitations is the mosque of Sulyman the Magnificent, of which the effect has been said to be more imposing than that of the original. Of the two hundred or more mosques scattered throughout the city those of Achmet, Bajazet, and Mohammed II. may be mentioned. An important monument of the ancient city is furnished by the remains of the Hippodrome, the centre of the Roman life of the town. Here are to be found the obelisk of Thothmes III., brought from On in the reign of Theodosius, and the triple serpents column, once in the Temple of Delhi. In 1452 the conquering Sueran threw his mace at the three talisman serpents in the Hippodrome, which were supposed to protect C. against serpents, and broke the lower jaw of one, but refrained from doing further damage when he learned that the city would probably be devastated by

an invasion of serpents if its protectors were destroyed. The published reports upon the excavations in and near the Hippodrome are making Byzantine C. more real to us. The chief Mohammedan antiquity is the Old Seraglio, occupying the whole south-eastern corner of the city. It originally formed the private domain of the sultan, and from the name of its chief entrance, Babi Humayun, the 'Sublime Porte,' has come the official name by which the Turkish government used to be recognised. It has three spacious courts, and around them are arranged the ancient buildings, one the ancient church of St. Irene, and one the old treasury, still containing vestments and arms of tremendous value. The question of education has received much attention during the last half century, and much progress has been made, though the teaching establishments are very largely of foreign institution and management. American and French colleges led the way in modern education, though one of the large Greek schools dates from the Middle Ages. Both Greeks and Armenians now have excellent educational facilities. The Turkish government has also made great improvements, and in 1867 a school for higher education was instituted by Sultan Abdul-Hamid. This work was carried further in 1909, when a university, granting degrees in theology, arts, science, etc., was also opened. From the beginning there have been schools connected with the mosques, where elementary subjects and theology were taught. It is in the bazaars that the oriental spirit is strongest, and these are arranged in rows, well-furnished with most kinds of wares, but without any particular architectural features. The city is well fortified, the main lines of fortification having been constructed since the Russian war in 1878. It is now easily accessible by rail, and there is good communication with the rest of the continent. It is connected with the central European railway system *via* Belgrade and Sofia. Exports are chiefly cereals, carpets, silk, wool, hides, and all kinds of refuse and waste materials such as horns, hoofs, skins, bones, old iron, etc. Several hundreds of tons of the sweetmeat known as 'Turkish delight' are also sent yearly to the rest of Europe and America. The manufactures of C. have all taken their rise during comparatively recent times, and only that of cloth-making has made any headway. At the beginning of the century it was estimated that C.'s imports were to the value of £7,000,000, of which the greater part consisted of manufactured goods,

whilst her export trade amounted to £1,000,000, of which £1,000,000 consisted of cereals. During the years 1899 and 1900, handsome new quays were built on both sides of the Golden Horn, thus making an excellent harbour. Ships of the largest class find safe anchorage here, and there are fine graving and dry-docks. It was the centre of the Mohammedan faith throughout the world, being the seat of the Caliph until the office was abolished on March 2, 1924. The

administration of C. passed into the hands of the Nationalist Gov. at Angora. On Nov. 17 the Sultan left C., 470 years after the first conquering Sultan had pranced into it. On Oct. 29, 1923, Kemal Pasha was elected first President of the Turkish Republic. C. had endured numerous air attacks during the Great War, and had been occupied by Great Britain, France and Italy for five years; it was evacuated by them on Oct 1923. A little later it was crowded by 30,000



CONSTANTINOPLE—S. SOPHIA

climate of the city is generally healthy, but it is very damp, and liable to great and sudden changes of temperature. The city was originally rendered very unhealthy by inefficient sanitation, but this is now improved somewhat. The population is varied, presenting a most remarkable mixture of races, nationalities, faiths, languages, and costumes. Each division forms to some extent a separate community, and the city divides itself into quarters according to these. On Nov. 1, 1922, the office of Sultan of Turkey was abolished, and on Nov.

destitute Turkish and 65,000 Russian refugees. According to the census of 1927, the pop. was 673,029, of which Stamboul contained 261,504, Pera 286,970 and Scutari 124,555. In 1924 the pop. was said to be 1,065,866, of whom 656,281 were Moslems, 279,780 Gks., 73,407 Armenians and 12,083 Jews. C. is governed by a prefect assisted by a nominated council of twenty-four. It has now ceased to be the commercial centre of the Near East and the citadel of Islam and the Capital of E. Christianity. C. has often been devastated by

fire from the year 400 onward. In 476 the public library, which is said to have contained 120,000 volumes, was destroyed. In 1696, 10,000 houses were burnt in consequence of the illuminations for the birth of the Sultan's son. In 1911 several thousand houses were burnt, and many more in 1912, 1916, 1917, 1919, 1921, and 1922. But now there is a fire-fighting organisation. In 330 C. was erected by Constantine the Great on the site of the ancient Byzantium, which dated from the seventh century

by the Crusaders, whose conduct on that occasion is one of their chief disgraces. From 1396-1401 it was unsuccessfully besieged by the Turks under Sultan Bajazet. Sultan Murad II. attacked it once again in 1422, and it held out with the greatest difficulty. The end was near, and in 1453, after a long and heroic defence against great odds, the city of Constantine fell. See BALKAN WAR and TURKEY. See Guillaume Josef Grelot, *A Late Voyage to Constantinople* (trans. by Philips, 1683); Coufopoulos,



CONSTANTINOPLE
(Galata Street)

[Canadian Pacific

B.C. For seven centuries it remained as the capital of the Rom. Empire in the E. As 'New Rome' it was early important, and on the partition of the empire in 395, it became the seat of the eastern emperors. Even before this time the new city had had to withstand assault, for in A.D. 378, after the defeat of Valens, the Goths had attacked it. Henceforth it was to do so on many occasions. Twice, in 616 and 626, it sustained onslaughts from the Persians, and twice again, in 668-75 and 717, the Arabs furiously but unsuccessfully attacked it. In 1203, and again in 1204, it was taken

Guide to Constantinople (Black's Guides, 3rd ed. 1902); Lethaby and Swainson's *Church of St. Sophia*, 1894; Brodrigg and Besant's *Constantinople*, 1879; Davey's *The Sultan and his Subjects*, 1897; Gibbon's *Decline and Fall of the Roman Empire*; Du Cange's *Constantinopolis Christiana* (new ed. 1825); *Histoire de Constantinople sous les empereurs français*; Hutton's *Constantinople*, 1900; De Amicis, *Constantinople*, 1898; Pear's *The Destruction of the Greek Empire*, 1903; and *The Fall of Constantinople*, 1885, and *Forty Years*, 1916.

Constantinople, Councils of. Of the eight Ecumenical Councils convoked previous to the Great Schism, the first was held at Nicæa, and the second, fifth, sixth and eighth were held at Constantinople. The first C. of C. (381 A.D.), of 150 bishops under Pope Damasus and Emperor Theodosius I., confirmed the Nicene Creed and condemned Apollinarianism—a heresy directed against the divinity of Christ. The Second C. of C. (553), of 165 bishops under Pope Vigilius and Emperor Justinian I., condemned the Nestorian heresy. The fifteen Anathematisms on Origen, sometimes ascribed to the Fifth Ecumenical, belong to a council held at Constantinople in 543. The Third C. of C. (680-1), under Pope Agatho and Emperor Constantine Pogonatus, defined a human and a divine will in Christ, thus terminating Monothelism. The Fourth C. of C. (869), of 102 bishops under Pope Adrian II. and Emperor Basil, is only recognised as ecumenical by the Church of Rome. It condemned Photius, who had seized the See of Constantinople, but the Photian schism was successful, and no other general ecumenical council was held at Constantinople. The chief work of the C. of C. was in matters of the theology of the Incarnation, but their decisions show a wide scope. (*See also COUNCIL.*)

Constantius I. (Chlorus, 'the pale'), Flavius Valerius (A.D. 250-306), son of Eutropius, father of Constantine the Great who succeeded him. In 292 Diocletian and Maximian chose Galerius and C. to help them with the administration of the empire, each receiving the title 'Cæsar.' Gaul, Spain and Britain were assigned to C. He was forced to repudiate his wife, Helena, and marry Maximian's daughter, Theodora. On the abdication of Diocletian and Maximian in May, 305, C. became Emperor of the West, Galerius of the East. He was a brave soldier, and an able, humane, and just ruler. He d. at Eboracum (York) during an expedition against the Picts in Britain. *See* Eutropius; Aurelius Victor, *Cæsares*.

Constantius II., Flavius Julius (A.D. 317-61), third son of Constantine the Great, who by will left his empire to his sons Constantine II., Constantius II., and Constans I. as 'Augusti,' with his nephews Dalmatius and Hanniballianus as 'Cæsars,' and 'Nobilissimus,' respectively. On their accession, 337, C. is said to have allowed the murder of Dalmatius and Hanniballianus. Thrace, Macedonia, Greece, the Asiatic provinces, and Egypt were allotted to him. He had been 'Cæsar' under Constantine I.

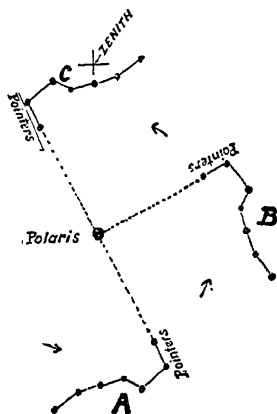
as early as 333. Throughout his reign he was at war with the Persians, and often defeated by them, notably in 348. When in 350 the revolt of Magnentius resulted in the death of Constans I., C. defeated the former at Mursa on R. Drave, 351, and in Gaul, 353, becoming master of the whole empire. Magnentius probably committed suicide after his defeat. In 355 C. II. made his cousin, the apostate Julian, 'Cæsar' and commander in Gaul. In 357 he visited Rome for the first time. He favoured the Arians, and banished the orthodox bishops. Julian's soldiers became devoted to him and proclaimed him emperor, forcing him to oppose C. The latter d. near Tarsus on his way to meet Julian, who became his successor. *See* Eusebius, *Vita Constantine*; Tillemont, *Histoire des Empereurs*.

Constantius III., a Rom. soldier, native of Illyria. He captured Constantinus the tyrant in A.D. 408, and held the rank of general by 411. He put down the rising of Attalus, 416. C. married the daughter of Honorius, who made him partner of his empire, 421. For seven months C. was emperor of the West, but Theodosius II., emperor of the East, refused to acknowledge him. While preparing to make war on Theodosius C. d. at Ravenna. His son became Valentinian III. *See* Bury, *Later Roman Empire*; Tillemont, *Histoire des Empereurs*; Le Beau, *Histoire du Bas-Empire*.

Constanx, or Constance, Lake, *see* CONSTANCE.

Constellation, a group of fixed stars conceived generally as representing some mythological figure. The stars may be regarded as forming the framework of these imaginary figures, thus in the well-known Northern C., *Ursa Major* (The Great Bear), called also the *Dipper*, the *Plough*, or *Charles's Wain*, the rough parallelogram formed by four bright stars form the body of the imaginary bear, whilst the three other bright stars starting in a curve from the top of the parallelogram constitute the tail. The origin of the Cs. is lost in the mists of the past, but it would seem that the Chaldeans were the first to give names to groups of stars. From them this star-lore was passed on to the Gks., and mention is made of several Cs. by Homer and Hesiod. About 366 B.C. a Greek astronomer, Eudoxus of Cnidus, described a list of Cs. which is substantially the same as that in use at the present day, and his work was versified by Aratus, who in his *Phænomena*, mentions forty-five Cs. Ptolemy mentioned forty-eight star-figures: twenty-one N. of the

ecliptic; the twelve signs of the Zodiac (*q.v.*); and fifteen S. of the ecliptic. Of course the ancients, not knowing of the southern terrestrial hemisphere, were equally ignorant of the southern celestial hemisphere. The Southern Cs. were gradually added during the 16th, 17th, and 18th centuries, the chief workers in this field being Petrus Theodorus (*d.* 1596), Bartschius (1624), Hevelius (1690), and Lacaille (1752). The total



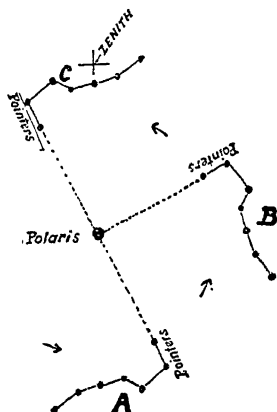
THREE POSITIONS OF THE GREAT BEAR ROUND THE POLE STAR

number of Cs. is now eighty-five, and their boundaries have been definitely fixed. This very necessary work was done by a committee of the British Association appointed in 1840, and presided over by Sir J. Herschel. See under specific names and STARS, and ZODIAC.

Constipation, stoppage or incomplete action of the bowel. This condition is so common in modern times that many people habitually take measures to stimulate the bowel. The chief causes are the character of the modern food, its mode of preparation, and the sedentary nature of many occupations. Much of our food consists of soft starchy material, and improved methods of milling have eliminated the harder particles of grain which formerly served to stimulate the bowels. In addition, the absence of exercise results in a weakened and anæmic state of the bowels in sedentary workers. In order to counteract what is practically a normal tendency to C., therefore, it is necessary to revert to some of the practices of our forefathers; to eat

brown or wholemeal bread, oatmeal porridge and the like, and to take regular and fairly vigorous exercise. C. also occurs as a symptom of many diseases, particularly those which have a decidedly weakening effect on the system. When the processes of digestion have extracted the nourishing constituents of food, the residue is projected along the intestinal passage by a series of muscular movements, and is eventually compressed towards the base of the bowel ready to be ejected to the exterior. If therefore the muscles and nerves of the intestine lack tone and are enfeebled by an insufficient supply of healthy blood, the passage of the food residue becomes imperfect, and if the supply of fluid is also insufficient to promote movement, a stoppage occurs which tends to become worse on account of the compression and hardening of the unexpelled residue. The effects of C. become intensified as the condition continues. The retained substances act as irritants and poisons, and a condition of auto-intoxication results. The toxic substances are carried by the bloodstream into all parts of the body; the patient is languid, complains of headache and general malaise, becomes depressed, and shows the effect of disordered health in the unwholesome colour of the skin, in his coated tongue and unpleasant breath. The treatment of C. aims first at discovering the cause; whether it be a diseased condition of the digestive organs, or general ill-health induced by improper food or general unhygienic conditions. In general, it may be said that attention to diet and hygiene is more useful than the employment of drugs. It should be recognised that starchy foods and tea are favourable to C., and a change should be made to green vegetables, fruit, and fruit products. Prunes and figs are particularly useful in causing renewed action of the bowel. Attention should be paid to digestion, all food should be masticated well, so that there may be no unmanageable lumps to defy digestion, and it is advisable to take very little liquid with meals. A good supply of fluid, however, is essential; but this is best effected by drinking a tumblerful of water night and morning, or even oftener if necessary. Regular exercise of a kind calculated to move the lower part of the trunk should be taken, and should be supplemented by massage practised by the patient himself at fixed times each day. It is important to recognise that the action of the bowel tends to recur at intervals dictated by the habits of the patient, and it is strongly advised

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that the utmost regularity in this respect should be observed, even when no immediate result is promised. Care and persistence often conquer the most obstinate C. without the aid of drugs. The objection to drugs is that though an immediate effect is obtained, the bowel is not strengthened, but may become even more debilitated after the abnormal stimulation. Where the patient shows no tendency to chronic C., such drugs as liquorice, aloes, rhubarb and magnesia, Epsom salts, and cascara sagrada are valuable. An enema of lukewarm water is usually effective, as also is glycerine administered as a suppository. It is above all things important to guard against the condition where the use of drugs results in their ultimate failure to produce any effect.

Constitucion, a tn. on the coast of Chili, situated at the mouth of the Maule, and is 115 m. N.E. of Concepcion, and a favourite seaside resort. Some shipbuilding is done there, and the chief exports are flour and grain. A dangerous bar exists in the roadstead caused by the river washing down large quantities of sand. A railway runs from this town to Talca. Pop. 7500.

Constitution, in politics, signifies a system of law established by the sovereign power of a state for its own guidance. Its main objects are to fix the limits and define the relations of the legislative, judicial, and executive powers of the state, both among themselves and with reference to the citizens of the state, regarded as a governed body. In the countries of continental Europe, since the foundation of the U.S.A., or at least since the first Fr. Revolution, the idea of a C. has been generally that of a written public law, promulgated by the sovereign power. In Great Britain it is the whole body of the public law, consuetudinary as well as statutory, which has grown up in the process of time, and is continually being modified by the action of the general will as interpreted and expressed by the parliamentary representatives of the nation. A constitutional monarchy is one in which the sovereign is restricted in his powers by chambers of the nations' representatives; the 'granting of a C.' accordingly means the transforming of a monarchy more or less absolute into a constitutional state. It has to be acknowledged that, in a general manner, the Cs. of modern Europe are political systems establishing the government of a nation by the nation itself, or at least by its participations in the government. As a rule these are based on the principle of national sovereignty. The first his-

torical type of a C., as expressed in the *Magna Charta*, is a direct emanation of the feudal system. Later, it was slowly amended, enlarged, and assured by successive agreements between the nation and its sovereign, and despite the rather strange fact that it has never been written, the British C. stands in our days a great deal firmer and less vulnerable than all the European Cs. for which it has been a pattern. The English C. rests on a pact; it is the normal and uninterrupted development of the principle of the respect for the rights of corporations representing the nation. Other Cs., notably that of France, are based on the right of the whole body of the citizens to govern themselves, or, to express it in a precise formula, on the principle of National Sovereignty. These two principles differ greatly. The necessity of a C. is accentuated not only in all federated republics (most of the existing republics are federated), but also in all other federated states, such as was formerly the case with the federated monarchies of Ger. In those federated states the C. has, in some way, the character of a treaty concluded between the different states combined in one federation, and thus it is quite different from any ordinary law. The pattern of the C. of a federal republic is that of the U.S.A., adopted before the outbreak of the Fr. Revolution. The other American republics are wavering between the Fr. system and that of the United States, but favour strongly the former. But there have been some still more complicated constitutional systems, such, for example, as that of Austria-Hungary, a state based on a personal union, which was that of a dual monarchy composed of two different countries practically independent of one another, but ruled by the same monarch. There is also a possibility for a confederation of several monarchies, as was in bygone times the old German confederation, broken up through the issue of the Austro-Prussian War of 1866. Absolute monarchies have no Cs., but are in certain ways ruled by traditions, such as the succession to the throne, to which every absolute ruler has to submit; should he attempt to alter the existing custom, his arbitrary dispositions would not be respected after his demise. These traditions, to which a Louis XIV. and the most powerful of the Russian autocrats had to submit, are for absolute monarchies exactly what the C. is in constitutional states. At the present time all modern states enjoy more or less liberal Cs., which differ very much in character, but may be generally classed as: (1) Constitu-

tional monarchies; (2) Unitarian republic (France); and (3) Federal republics (U.S.A. Germany, the U.S.S.R. and others). Existing constitutional monarchies in Europe are: Great Britain, Belgium, Holland, Denmark, Norway, Sweden, Italy, Spain, Roumania, Bulgaria. Before the Great War, Germany, Austria-Hungary, Serbia and Greece had to be added to this list, and, conditionally, also Russia and what remained of Turkey in Europe. Only one Unitarian republic is in existence: France. Federal republics in Europe, besides those above mentioned, are Switzerland and Portugal, the latter of a rather indefinite character. Of American republics the United States, Mexico, Brazil, the Argentine, Peru, and Chili will be taken into consideration. Of the smaller, mostly Central American republics, it may be said that as political factors they are of less importance.

Developments since the Great War.—Through the world-wide upheaval of the Great War the structure of many national Cs. has considerably changed. The three or four principal causes effecting these changes may be briefly enumerated: firstly, the further development of political democracy, a growth that had been going on before the war, but which the war intensified. The fact that the United States came last but with great effect into the war, and was to so great an extent the arbiter of its conclusion, led to American ideas of political democracy having a wide influence among European statesmen, when they came to overhaul their constitutional machinery in the months and years immediately following the war. The influence of the ideals of President Woodrow Wilson was immense in the two or three years of reconstruction immediately after the cessation of hostilities, and American distrust of 'this king business' gave added impetus to the republican movement throughout Europe. The modern Ger. (Weimar) C. owes much to these ideals. Secondly, there was the impact of the feminist movement on Cs. Here again the war did but intensify a pre-war movement, but the aid that women rendered their countries in the time of emergency was sufficient at its close to ensure in most European countries that women's franchise should be established as part of the constitutional machinery. France is the sole great European country that has made no concession to this movement. Next, should be noted the effect on modern Cs. of the economic repercussions of the war and the post-war depression. This received its strongest expression in

the great Russian Revolution of 1917. In all the countries of the combatants, victors and vanquished alike, the question who should pay for the war was the paramount issue of politics, and the unrest that ensued on the attempted solutions of this problem strengthened the influence of Russia and fostered the growth of socialist parties throughout the world. This, in its turn, brought about in countries like Hungary and Bavaria short-lived attempts to imitate the Russian Revolution. The counter-revolutionary forces awakened by these premature attempts—forces like Fascism in Italy, the Awakening Magyar movement in Hungary (see HUNGARIAN REVOLUTION), the National Socialist and Heimwehr movements in Germany and Austria respectively—were in their nature anti-democratic and anti-feminist. Where these movements triumphed in Europe the general disposition was to abolish, or at least to suspend, the former Cs. The Fascists (see FASCISM) in Italy, under the leadership of Mussolini (*q.v.*) have entirely reformed the Italian C., the new 'corporative state' there no more resembling the former C. of Italy than the C. of the U.S.S.R. resembles the former C. of Tsarist Russia. In Spain the Directory of Primo de Rivera (*q.v.*) was content to suspend the C., which his successor undertook to restore.

At the present moment (1931) these or like movements are in a state of flux so far as European Cs. are concerned, and their future would appear to be bound up with the ultimate and permanent triumph of one or other of the two modern rival systems—Fascism, anti-democratic, anti-feminist, and anti-socialist (even in some cases anti-clerical and anti-semitic), and, on the other hand Sovietism, or Bolshevism, *i.e.* socialist Cs., led by the group of soviet socialist republics, the U.S.S.R. But amid this welter of conflicting aims there is a steady growth of the idea of the super-national state exemplified in the League of Nations and the pan-European ideal sponsored by M. Briand (*q.v.*). Bearing in mind the relatively temporary nature of many of the present Cs. an examination of those of the principal countries may be undertaken.

Constitutions of New States Created since the Great War.—The Great War resulted in the formation of a number of new states from the old empires of Germany, Austro-Hungary, Russia and Turkey. Of the former Russian empire, the Grand Duchy of Finland became a republic, and the old Baltic Provinces (*q.v.*) became the republics of Esthonia, Latvia and Lithuania.

Poland (see *infra*) once again became an independent state, being constituted a republic from territories which had hitherto belonged to Germany, Austria-Hungary, and Russia. Bohemia, formerly part of the Austro-Hungarian empire, was added to the Slovak part of that empire, and the joint territory became the independent sovereign republic of Czechoslovakia (see *infra*). The former kingdom of Montenegro was absorbed in the new kingdom of Yugo-Slavia, based mainly on old Serbia. Among the new states formed from the old Ottoman Empire are the independent sovereign states of Iraq, and Hejaz and Nejd, all of which are kingdoms. The Holy See now has its temporal power restored in the miniature state of Vatican City, and Iceland is now a sovereign independent kingdom united to Denmark only by dynastic ties, the King of Denmark being also king of Iceland.

The Cs. of most of these new states (always excepting that of the Vatican City) are by no means finally determined. This is due largely to class conflicts, there being a disposition on the part of any particular party which happens to be in office, to amend the C. in its own favour. Again, dictatorships exist even in states with the most elaborate democratic Cs. Of the new states, Czechoslovakia appears to possess the most stable C., but the C. of Poland might seem to lack that element of permanence which the great international importance of the country demands. Outside Europe, Iraq (*q.v.*), under British guidance, has evolved a polity which augurs well for the future of a young Arab state organised on Western lines.

Central American Republics. viz. Colombia, Venezuela, Guatemala, Ecuador, Honduras, Costa Rica, Nicaragua, and Salvador, have each of them a C. of such fragility and liable to such vicissitudes that it is impossible to describe them in a satisfactory manner. The Republic of Panama has a certain importance because the Panama Canal goes through its territory. It is governed by a President elected for four years, and legislated by a Chamber of Deputies of forty-six members, which meets once in two years. Cuba, since the peace treaty of Paris, Dec. 16, 1898, is an independent state, which adopted on Feb. 21, 1901, a C. under which a republican form of govt. was constituted, consisting of a President, a Vice-President, a Senate, and a Chamber of Representatives. Practically, Cuba is under the suzerainty of the U.S.A., as it accepted on June 12, 1901, the treaty

imposed on it by the U.S.A., whereby Cuba can make no treaty with any foreign power endangering its independence, must contract no debts for which the current revenue would not suffice, has to concede to the U.S.A. Govt. the right of intervention, and also to grant to it the use of naval stations. The Senate has twenty-four members and the House of Representatives 118.

Argentina is a republic (*República Argentina*) which conforms to its C. of May 15, 1853 (modified in 1866 and 1898), governed by a President elected for six years by representatives of the fourteen provinces, double in number of senators and deputies combined. The legislative authority belongs to the National Congress, consisting of a Senate and a House of Deputies. The senators, thirty in number, are elected, two for each of the capitals and the provinces, by a special body of electors in the capital, and by the legislatures in the provinces. The House of Deputies consists of 158 members elected by the people for four years, at the rate of one for every 33,000 inhabitants, one half of the House to retire every two years. Deputies must be twenty-five years old, and have been citizens for four years. Senators must be thirty years of age and citizens of six years' standing; one-third is renewed every three years. The two Houses meet every year. A Vice-President, elected as and with the President, is Speaker of the Senate, but has no political power. The President commands the army, makes all appointments, has the right of presentation to bishoprics, and is responsible with the Ministry for the acts of the executive. Both President and Vice-President must be Roman Catholics, Argentine by birth, and cannot be re-elected unless a period of six years intervene. The C. is nearly identical with that of the U.S.A.

Austria.—Formerly the chief state in the Austro-Hungarian empire, ruled by the Hapsburgs, Austria was proclaimed a federal republic on Nov. 12, 1918. The temporary Gov. formed on the collapse of the old imperial Gov. convoked a National Constitutional Assembly, which drew up a C. finally adopted Dec. 7, 1929. The President is directly elected for six years by all the citizens of twenty-one years of age. He can dissolve parliament, and he appoints the ministry. There are two chambers—a popularly elected Assembly, the *Nationalrat*, consisting of 165 members, and a First Chamber, called the *Bundesrat*, chosen by the Provincial Diets, and numbering forty-six members. The latter chamber has only

advisory powers. The republic consists of eight provinces, each with its Diet, and the capital city of Vienna. The Nationalrat is elected for a term of four years and complete democracy prevails.

Belgium is, according to the C. of 1831, a constitutional, representative, and hereditary monarchy. The legislative power is vested in the King, the Senate, and the Chamber of Representatives. No act of the king can have effect unless countersigned by one of his ministers, who then becomes responsible for it. The king convokes, prorogues, and dissolves the chambers. The Senate consists of 153 members elected partly directly and partly indirectly for a term of four years. The number elected directly is equal to half the number of members of the Chamber of Representatives, and is proportioned to the population of each province. The constituent body is similar to that which elects deputies to the chamber, the minimum age of the electors being fixed at twenty-one years. In the direct election of members, both of the Senate and Chamber of Representatives the principle of proportional representation of parties is observed. Senators elected indirectly are chosen by the provincial councils. All senators must be at least forty years of age, whether elected directly or indirectly. Members of the Chamber of Representatives are all elected directly for a period of four years and their number is proportioned to the population. The ballot is secret and voting obligatory. Every male citizen over twenty-five years of age domiciled for not less than six months in the same commune, and not legally disqualified, has a vote. Certain categories of women, mostly war widows, may vote, but the total number of these is not great. The number of deputies returned to the Chamber in 1929 was 187. Senate and Chamber assemble annually in November, and sit for not less than forty days. The provinces and communes have a large amount of self-government.

Brazil was on Nov. 15, 1889, declared a republic under the title of the United States of Brazil, which was confirmed by the C. adopted by the National Congress on Feb. 24, 1891. Each of the old provinces became a self-administered state entitled to levy export duties. Foreign affairs, defence, maintenance of public order, execution of federal laws, import duties, stamps, postal matters, and bank-note circulating belong to the competency of the federal authorities alone. The National Congress exercises the legislative power with the

sanction of the President, and consists of a Chamber of Representatives and a Senate. It meets without convocation each year for four months, but may be prorogued or convoked extraordinary. Deputies and senators receive salaries, but neither can be Ministers of state and retain their seats at the same time. Senators have to be thirty-five years of age and citizens of six years' standing. The 212 members of the Chamber of Deputies are elected for three years by direct vote in proportion of one for every 70,000; no state shall have less than four representatives; minorities shall be represented. The Chamber has the initiative in legislation relating to taxation. Senators are chosen by direct vote for nine years, three for each state and the federal district, sixty-three in all; the Senate is renewed by one-third every three years. The executive is vested in the President of the republic, who must be thirty-five years of age and a native of Brazil, and is elected for four years, but not re-eligible. Both he and the Vice-President are elected by the people directly.

Bulgaria's first C. was one of the creations of the Berlin Congress, 1878. The C. of 1879, twice amended in 1893 and in 1911, vests the legislative authority in a single chamber, called the Sobranje, the members of which are elected by universal manhood suffrage. These number 227 members and the assembly is elected for four years, but may be dissolved at any time by the king; new elections have to take place within two months of the dissolution. All laws passed by the Sobranje require the royal assent. The executive power is vested in a council of ten ministers nominated by the king.

Chili's C. was voted on May 25, 1833, and has since been amended several times. The latest C. came into force on October 18, 1925. It vests the legislative power in a National Congress consisting of a Senate and Chamber of Deputies. The number of senators is forty-five popularly elected by the provinces for a term of eight years. The 132 deputies are elected directly for a period of three years, in the proportion of one for every 30,000 of the population. Senators and deputies are elected by the same electors, who must be twenty-one years of age, and able to read and write. The executive belongs to the President, elected for six years by the people, and is not re-eligible.

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Nanking Assembly. The Organic Law of the Republic was promulgated in 1928. A legislative council is projected, but at present the country, or part of it, is ruled by the Executive of the Knomintang, or Nationalist Party.

Czecho-Slovakia.—The C. of this republic was adopted by the National Assembly on Feb 29, 1920. The state is declared to be a democratic republic, single and indivisible. The Chamber has 300 members, elected by all the citizens over twenty-one and of both sexes for a period of six years. The Senate of 150 members is renewed every eight years. Both Chambers sitting together elect the President for seven years. An absolute majority of the Chamber can override an adverse decision of the Senate. All citizens over twenty-six elect the Senate, whose members must be not less than forty-five years of age. The system of election to both Houses is that of proportional representation. The C. states that no President may hold office for more than two successive terms, but this rule has been waived in favour of President Thomas Masaryk (*q.v.*), the 'Father' of the new state.

Denmark's C. is embodied in the charter of June 5, 1915, modified in 1920, the whole being based on the 'Grundlov,' or charter, of 1849, which gave Denmark her first modern C. The executive power rests with the king and his responsible ministers, the right of making or amending laws belongs to the Rigsdag, acting jointly with the sovereign. The Evangelical Lutheran Church is the religion of state, to which the king has to belong. The Rigsdag consists of the Lands-thing, or Upper House, and the Folkething, or House of Commons. The Landsting consists of 56 members, elected indirectly by the people for a term of eight years. The Folkething consists of 149 members, returned in direct election, by universal suffrage, for the term of four years, the method of election being for the most part based on proportional representation. The franchise belongs to every citizen who has reached his twenty-fifth year, both sexes voting. All men and women of good reputation past the age of twenty-five are eligible for election to the Folkething and Landsting. The Rigsdag has to meet every year on the first Tuesday in October. The executive, acting under the king, is called the State Council (*Staatsraadet*), and is practically the cabinet of ministers.

France is, since Sept. 4, 1870, the outstanding 'unitarian,' that is, centralised republic, not of Europe alone, but of the whole world. Since 1789

France has had many Cs. Of these Cs., the one whose principles have been more or less adopted in the remainder, and which, to a certain point, may still be considered to constitute the fundamental laws by which France has been, and still is, governed, is the C. of 1791; this C. is not one single Act, wherein are contained and condensed all the numerous regulations by which the function of the governing machine is categorically prescribed, but it consists of an agglomeration of laws of all sorts and conditions, which in their *ensemble* ordain the political, economical, and social rights of the citizens, as well as the duties and obligations of the government. The present organisation of France as a centralised state is derived from the codification of these laws, which as a whole form the C. of 1791. It is impossible to give here a history of the constitutional evolution of France from 1791 to the establishment of the parliamentary republic after the débâcle of the second empire in 1870. From that epoch to the voting of the C. of 1875, France was practically without a C. The *Assemblée Nationale* reigned in France. Thiers and MacMahon, the first two presidents of the republic, were simply the executors of the National Assembly's will, which was capricious and unsteady, and prevented the establishment of a lasting and secure government. The constitutional laws voted by that assembly in 1875 are three: the law of Feb. 24, 1875, for the organisation of the Senate; the law of Feb. 25, 1875, for the organisation of the public powers; and the law of July 16, 1875, concerning the relation of one public power to another. These fundamental laws were completed by the law of Aug. 2, 1875, for the election of senators, and that of Nov. 20, 1875, for the election of deputies. Modifications of these laws were adopted on June 19-21, 1879, and Aug. 13-14, 1884. Since then further modifications have been accepted, but none of a trenchant character, but the C., as it was accepted on Aug. 13-14, 1884, is, at least in its essentials, still in force. By this law the principle of a republic dominates the constitutional laws, and the members of the former reigning families are excluded from the election for president; this measure was completed by the law of June 2, 1886, by which the chiefs of those families were exiled, and all members of them excluded from service in the army, navy, or other state functions. More alterations were made in June 1885, and July 1889. The legislative power is vested in the Chamber of Deputies

and the Senate; the executive is entrusted to the president of the republic and the ministry. The president is elected for seven years, by an absolute majority of votes, by the Senate and Chamber of Deputies united in a National Assembly. He promulgates the laws voted by both chambers, and ensures their execution. He selects the ministry from members of both houses, but may also choose ministers from outside the two chambers; he appoints all civil and military functionaries, has the right of grace, and is responsible only in case of high treason. He concludes treaties with foreign powers, but such as affect the area of France or her colonies require the approval of the legislature. He cannot declare war without the previous consent of both chambers. Every act of the president must be countersigned by a minister. With the consent of the Senate he can dissolve the Chamber of Deputies. In case of vacancy the two chambers assemble jointly and elect immediately a new president. The council of ministers is responsible to the chambers for its general policy, each minister personally for his department. The Chamber of Deputies is elected for four years by manhood suffrage; each male citizen twenty-one years old, not actually in military service, able to prove a six months' residence at one place, and not legally disqualified, has the right of vote. Deputies must be citizens and not under twenty-five years of age. The manner of election has undergone repeated changes, from *scrutin de liste* (under which every elector votes for as many deputies as the entire department has to elect) to *scrutin d'arrondissement* (under which every department is divided into a number of circumscriptions, each elector voting only for one deputy). In 1927 *scrutin d'arrondissement* was re-established. At present the chamber is composed of 612 deputies. The Senate consists of 314 members, elected from citizens over forty years of age, for nine years; one-third retiring every three years. Senators are elected indirectly by an electoral body composed (1) of delegates chosen by the municipal council of each commune in proportion to the population, and (2) by the deputies, councillors-general, and district-councillors of the department. Senate and Chamber of Deputies assemble by right every year in January, unless previously convoked by the president of the republic. They must remain at least five months in session. Financial laws must be first presented to and voted by the Chamber of Deputies. The Senate, when constituted as a High Court of Justice, tries

cases of attempt against the safety of the state, or of plotting to change the form of government.

Germany.—At the end of the Great War the Ger. Emperor Wilhelm II. abdicated, and the Ger. empire became a republic on Nov. 9, 1918. Along with the emperor, the reigning princes of the federal states were deposed, or abdicated, and for a short period the country was ruled by a Council of People's Commissioners seated at Berlin. A short-lived Spartacist republic at Munich, on the Bolshevik model, was soon suppressed, and on Jan. 19, 1919, a National Constituent Assembly was elected to frame a C. This Assembly met at Weimar on Feb. 6, 1919; it discussed the C. for several months and the resultant C. was promulgated on Aug. 11 following. This C. is, therefore, known as the Weimar C. The new state, as the previous one, is on a federal basis, and it even retains the old title of *Deutsches Reich*. The state was declared to be a Republic deriving its power from the people. Each of the states has its legislative organ, which must be republican, and elected by all male and female citizens on a basis of proportional representation. The federal Gov. consists of a President chosen by a direct vote of the people (not by an electoral college, as in the U.S.A.); he holds office for seven years, and may be re-elected, and his duties are similar to those of a constitutional monarch. The President (as in the case of the U.S.A.) chooses the ministers, who are presided over by a Chancellor. There are two federal chambers, as in the old C., the Lower House, or *Reichstag*, consisting of directly chosen representatives from all parts of the Reich, and numbering in 1930 about 500 (one for each 60,000 votes), and a *Reichsrat*, or 'Council of the Reich,' which provides, as the *Bundesrat* of the old régime did, for the representation of the individual States. The Reichsrat or State Council consisted of 66 members in 1928. In one most important respect the Reichsrat differs from the Bundesrat—namely, that it is only an advisory council. However, the consent of the Reichsrat is necessary before ministers can introduce a bill into the Reichstag. The Reichsrat's power is chiefly suspensory, and disputes between the two chambers are finally resolved by a referendum. Indeed, the referendum and the plébiscite play a large part in the German C., the latter being resorted to with some frequency. As against this may be set the fact that there are no by-elections to the Reichstag. This is elected for four

years, and a vacancy is filled by the person next on the party-list of the late member. In short, the gov. of the Reich may be regarded as that of a single-chamber legislature, checked by a President with large powers and resort to the referendum. It has stood the test of ten most difficult years.

Great Britain.—The supreme legislative power of the British empire is by its C. given to parliament, which is composed (*King in Parliament*), to speak in legal terms, of the king, the House of Lords, and the House of Commons. Parliament is summoned by the writ of the sovereign issued out of Chancery, by advice of the Privy Council, at least thirty-five days previous to its assembling. Every session must end with a prorogation, and by it all bills which have not been passed during the session then lapse. A dissolution may occur by will of the sovereign, or, as is most usual, during the recess by proclamation, or finally by lapse of time, the statutory limit of the duration of the existence of any parliament being five years. Important alterations were made in the C. by the Parliament Act, 1911 (1 and 2 Geo. V., ch. 13). Under this Act, all money bills (so certified by the Speaker of the House of Commons), if not passed by the House of Lords without amendment, may become law without its concurrence on the royal assent being signified. Public bills, other than money bills, or a bill extending the maximum duration of a parliament, if passed by the House of Commons in three successive sessions, whether of the same parliament or not, and rejected each time by the House of Lords, may become law without their concurrence on the royal assent being signified, provided that two years have elapsed between the second reading in the first session of the House of Commons and the third reading in the third session. All bills coming under this Act must reach the House of Lords at least one month before the end of the session. Finally, this Parliament Act limits the maximum duration of parliament to five years instead of the former seven. The present form of parliament, as divided into two houses of Legislature, the Lords and the Commons, dates from the middle of the fourteenth century. The House of Lords consists of peers who hold their seats: (1) By hereditary right; (2) by creation of the sovereign; (3) by virtue of office, English bishops; (4) by elections for life, Irish peers; (5) by elections for duration of parliament, Scottish peers. The House of Commons consists of members represent-

ing county, borough, and university constituencies of the three divisions of the United Kingdom. No one under twenty-one years of age can be a member of parliament. All clergymen of the Church of England, ministers of the Church of Scotland, and Roman Catholic clergymen are disqualified from sitting as members; all government contractors, and all sheriffs and returning officers for the localities for which they act, are disqualified both from voting and from sitting as members. No Scottish or English peer can be elected to the House of Commons, but non-representative Irish peers are eligible. Since August 1911, provision is made for the payment of a salary of £400 per year to members other than those already in receipt of salaries as officers of the House, as ministers, or as officers of His Majesty's household. This provision does not extend to the House of Lords. Every elector must be of full age, and must be registered in the electoral lists. The executive government of Great Britain and Ireland is vested nominally in the crown; but practically in a committee of ministers, commonly called the Cabinet, whose existence is dependent on the possession of a majority in the House of Commons. The First Lord of the Treasury is, as a rule, the chief of the ministry, and on his recommendation his colleagues are appointed; he dispenses the greater portion of the patronage of the crown. (For the Cs. of the British Overseas Dominions see AUSTRALIA; CANADA; etc.)

Greece.—The C. adopted Oct. 29, 1864, gave the whole legislative power to a single chamber, called the Bulé, composed of 235 members, elected by manhood suffrage for a term of four years. In 1911 the Council of State was re-established as a substitute for a second chamber, the function of which is to be the drafting of laws and the annulling of official decisions and acts which may be contrary to law. On April 13, 1924, Greece by popular plébiscite became a republic and the new C. was published on June 3, 1927. A short while afterwards this C. was suspended by the brief dictatorship of Pangalos. On December 12, 1928, a new constitutional law created a senate of 120 in addition to the Chamber, both of which are elected bodies.

Haiti was for long a hot-bed of revolutions, but has a C., which was ratified in 1918 and widely amended in 1928. Real power resides in the Commander of the U.S. Marines.

Holland.—According to the charter originally given at the reconstruction as a kingdom in 1815, revised in 1848, 1887, 1917 and 1922,

the Netherlands are a constitutional and hereditary monarchy. The royal succession is in the direct male line in the order of primogeniture; in default of male heirs the female line ascends the throne. The sovereign holds exclusively the executive power of the state, while the whole legislative authority rests conjointly in the sovereign and parliament, the latter, called the States-General, consisting of two chambers. The Upper or First Chamber is composed of fifty members, elected by the provincial states. The Second Chamber of the States-General numbers 100 deputies who are elected by a system of proportional representation. According to the Electoral Reform Act (1917) all Dutch citizens of both sexes not under twenty-five years of age, are voters. The members of the Second Chamber are elected for four years and retire in a body. The First Chamber is elected for six years, and every three years one-third of the members retire by rotation. Alterations in the C. can be made only by a bill declaring that there is reason for introducing these alterations, followed by a dissolution of the chambers and a second confirmation by the new States-General by two-thirds of the votes.

Hungary.—This state is at the moment (1930) a kingless 'kingdom,' the functions of the monarch being exercised by a regent, an office held by Nicholas Horthy (*q.v.*) since March 1, 1920. From March 21, 1919, to the following August 7, a Soviet Gov., ruling in the name of the proletariat, held the capital Budapest. Parliament consists of two houses, an Upper House consisting of representatives elected by groups of interests—those of the aristocrats, municipalities, religious bodies, high state officials (judiciary, army, etc.), chambers of commerce, scientific institutions, and members appointed by the regent. The Lower House has 245 members.

Iceland.—The C. is based on the Act of Union of Nov. 30, 1918. By this Act Iceland was sundered from Denmark, the motherland, in every respect, except that the monarch of Denmark is at the same time King of Iceland. In Iceland, however, Danish citizens enjoy the same rights as Icelandic citizens, and vice versa. Parliament in Iceland is called the Althing and is divided into an Upper and Lower House, the former consisting of fourteen members and the latter of twenty-eight. Proportional representation obtains only in the capital, which returns four members to the Althing, and all citizens of both sexes of more than five years' resi-

dence in Iceland and over twenty-five years of age elect to both Houses. In case of disagreement between the Houses, a final decision is obtained by a joint sitting, when bills, other than the Budget, are passed if they receive a two-thirds majority. In the case of money bills, a simple majority suffices to secure enactment.

Iraq.—Is an independent kingdom, but subject to the mandate of the League of Nations, Great Britain being the mandatory until the relations between her and Iraq were regulated by Treaty (for the terms of the present Treaty see under IRAQ). Iraq has not yet joined the League, but her claim to membership is to be made before the League Assembly in 1932. The Organic Law of the state was adopted by a Constituent Assembly in June, 1924. The state is a limited monarchy with a nominated Senate of twenty and a Lower House of eighty-eight members chosen by popular vote. British Gov.'s supervisory authority is exercised through a High Commissioner, assisted by a political secretary and staff.

Italy.—The fundamental laws of the former kingdom of Sardinia, promulgated on March 4, 1848, remain practically as the C. of the present kingdom of Italy, and were extended to the provinces annexed in 1859 and 1860, to Venice on July 28, 1866, and to Rome and the Roman provinces in October and December 1870. The state is a representative monarchy; the throne is hereditary in direct male line. The legislative power is collectively exercised by the king and the two chambers, Senate and Chamber of Deputies. The executive power belongs to the king alone. This much of the old C. of Italy remains, but practically all else has been abolished or modified since the advent of Fascism to power. The real power in the country is the Grand Council of Fascism, the principal organ of the Fascist Party, whose membership in 1930 exceeded one million. Ever since the formation of the first Fascist Gov., with Benito Mussolini at its head, modifications of the old C. have been going forward, with the intention of making it conform with Fascist ideals. The parliamentary institution is that which has undergone the greatest change. The whole principle of territorial representation was swept away by the law of May, 17, 1928, when the entire kingdom became a single constituency. In the place of a democratic state based on representatives of different districts is put the 'Corporative State,' in which the legislators in the Chamber of Deputies are elected by thirteen National Confederations of Industry.

The underlying idea of the corporative state is to give an authoritative and direct voice in legislation to those who carry on the industries of the country, both employers and employed. The national confederations can select twice the number of deputies required, which the Fascist Grand Council cuts down to the required number, 400, whose names are included on a final list which the voters must accept or reject *as a whole*. The latter contingency is extremely improbable, but provision is made by the electoral law to meet this contingency. When elected the Chamber sits for five years. There is a Senate of 451 members nominated by the king for life, but whose minimum age must be forty. As the real power resides in the Fascist Grand Council, its constitution is important. It consists of four members appointed for an indefinite period, these four being the great leaders of the Party such as those who led the 'March to Rome'; nineteen members (including Ministers and other high officials) appointed for as long as they hold their offices; and certain other members, unlimited as to number, appointed for a three years' period, by the 'Head of the Government.' By this means the 'Head of the Government' controls the Council and through the Council the list of deputies. Two small parts of the Italian peninsula have sovereign powers other than that of the Italian gov. These are the Papal State, *Vatican City*, and the Republic of *San Marino*. In the former the Pope exercises full sovereignty, and in the latter the legislative power is vested in a Grand Council of 60 members and the executive power exercised by the two Regents.

Japan.—The Emperor as sovereign exercises the executive power with the assistance of Cabinet Ministers appointed by and responsible to him; he declares war, makes peace, and concludes treaties, and exercises the legislative power with the consent of the Imperial Diet, which he convokes, opens, closes, and prorogues; and gives sanction to laws. A privy council is consulted on important matters of state. The Diet consists of a House of Peers and a House of Representatives. The House of Peers (of 407 members) is composed of members of the imperial family, the different orders of nobility, persons nominated by the Emperor for meritorious services to the state or for erudition, and some elected by people paying the highest taxes. For some of them the membership is for life, for others for seven years. The House of Representatives consists of 464

members, a fixed number for each electoral district, in proportion of one to about 128,000 of the population. Electors have to be male Japanese subjects of full twenty-five years of age. Male Japanese subjects of at least thirty years of age are eligible for election, who are neither officials of the imperial household, priests, students teachers of elementary schools, nor election officials. President and Vice-President of the House of Peers are nominated by the Emperor; those of the House of Representatives also by the Emperor, but from among three candidates elected by the House. The Imperial Diet has to meet annually, and has control over the finances.

Liberia, on the W. coast of Africa, has modelled its C. after that of the U.S.A. A peculiarity is that electors must be of negro blood and owners of land.

Luxemburg.—From 1815-66 the grand duchy of Luxemburg was included in the former Ger. confederation, and by the Treaty of London, 1867, it is declared neutral territory. A Chamber of Deputies of 52 members is directly elected by the cantons for six years, of which half is renewed every three years. The executive belongs to the sovereign, and through him to a ministry. The C. of 1868 was modified in 1919 in the direction of the extension of democratic control. Thus universal suffrage and proportional representation were introduced and a declaration made that sovereign power resided in the nation.

Mexico.—By the terms of the present C., dated Feb. 5, 1857, repeatedly modified up to Feb. 1917, Mexico is a federal republic divided into states—at present twenty-eight, with two territories and a federal district—each of which manages its local affairs, while the whole are united in one body politic by fundamental laws. The legislative powers belong to a Congress composed of a Senate and a Chamber of Representatives; the executive to the President. Representatives are elected for two years by universal suffrage, at the rate of one for every 60,000 inhabitants; must be twenty-five years of age, and resident in the state where elected. Senators to the number of fifty-eight are chosen in the same manner as the representatives, but must be thirty years of age. The President is elected for four years by direct vote and since 1926 may be once re-elected, but not for a consecutive term.

Monaco was formerly autocratically ruled by the prince, but has been, since Jan. 7, 1911, provided with a National Council of 21 members

elected by universal suffrage for four years, which exercises the legislative power jointly with the prince, who carries on the government through a ministry assisted by a council of state.

Norway's C. is the oldest of all European Cs., with the exception of those of England, Hungary (before the Great War), and Sweden, and was in force after the reunion with Denmark in 1376, till the latter part of the seventeenth century, when the Danish kings established an absolute monarchy. By the Treaty of Kiel, Jan. 14, 1814, Norway joined Sweden, but after the union had endured nearly a century, on June 7, 1905, Norway declared the union with Sweden dissolved, and a mutual agreement was signed on Oct. 26, 1907. A treaty guaranteeing the integrity of Norwegian territory was signed at Christiania by the representatives of Norway, Great Britain, France, Germany, and Russia, which on Jan. 8, 1908, received the unanimous approval of the Storting. Prince Charles of Denmark was elected king and ascended the throne as Haakon VII. The C. of May 17, 1814, vests the legislative power of the realm in the Storting as representative of the sovereign people. The royal veto may be exercised twice; but if the same bill pass three Stortings, formed by separate and subsequent elections, it becomes law without the sovereign's consent. The Storting assembles yearly *suo jure*, and not by writ from the king or the executive. Every Norwegian citizen of twenty-three years of age, provided that he resides and has resided for five years in the country, is entitled to vote. Since 1913 women are entitled to vote on the same terms as men. Elections are direct and the method by proportional representation. Every third year the people choose their representatives to the number of 150. Each district elects one member. Representatives must be thirty years of age and they must have resided in Norway for ten years. The Storting, which numbers 150, is divided into two houses, the Lagting and the Odelsting, the former composed of one-fourth, the latter of three-fourths of the members of the Storting; each Ting nominates its own president. Questions relating to laws must be considered by each house separately. All new laws are first laid before the Odelsting, from which they pass into the Lagting. If they do not agree, both Houses assemble in common sitting to deliberate; the final decision requires a majority of two-thirds of the voters. The Lagting and the ordinary members of the Supreme Court of Justice form a high court of justice, the Rigsret, for the impeach-

ment and trial of ministers, members of the Hølesteret and members of the Storting.

Paraguay's new C. dates from Nov. 25, 1870. A Congress consisting of a Senate and a Chamber of Deputies holds the legislative power. Both Houses are elected by direct vote of the people; the Senate in proportion of one member for every 12,000 inhabitants, the deputies in one for every 6000. The executive power is vested in a President, who exercises his functions through a Cabinet of responsible Ministers; and a Vice-President with no individual prerogatives but who acts as President of the Senate.

Persia has a C. drawn up in 1906 by a National Assembly, or Majliss.

Peru.—The new C. of Peru dates from January 18, 1920 and by it the legislative power belongs to a Senate of thirty-five members, and a House of Representatives of 110 members. Both Houses are elected by direct vote for five years. The executive is vested in the President, who is elected for five years, and is assisted by a Cabinet of seven Ministers holding office at his pleasure. The President's acts are of no legal value without the signature of a Minister.

Poland.—The C. of this state was adopted on March 17, 1921. The state is a republic with two Chambers, a Senate of 111 members and a Diet, called the Sejm, with 444 deputies. Election to both Houses is by universal franchise of both sexes; over twenty-one for the Diet and thirty for the Senate; proportional representation obtains. The C. was revised in July 1926, in the direction of strengthening the Govt. at the expense of the Sejm. The President is elected for a term of seven years by Senate and Sejm sitting together as a National Assembly (on the lines of the French C.). Districts have their own local diets. The former German of Danzig, inhabited by many Poles, is a Free City under the League of Nations, with Diet and Senate. The C. was approved on May 11, 1922.

Portugal has been an independent state and a monarchy since the twelfth century until 1910. On Oct. 5 of this year the republic was proclaimed and a provisional Gov. appointed. On Aug. 20, 1911, a new C. was adopted, which provides for two chambers, the first of which is called the National Council; its 164 members to be elected for three years by direct suffrage. The second or upper chamber of seventy-one members to be elected by all the municipal councils, and be renewable half at a time every three years. The president of the republic is elected by both

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chambers for four years, but is not re-eligible. He appoints the ministers who are responsible to parliament.

Roumania.—Formerly two vassal provinces of Turkey, Moldavia and Wallachia, united by a firman of the Porte, dated Dec. 22, 1861, under Prince Alexander John Cusa, as a semi-independent state, with Bucharest as capital. A revolution forced Cusa in Feb. 1866 to abdicate, and Charles of Hohenzollern was elected prince. He convoked a constituent assembly, elected by universal suffrage, which voted a C. but which was twice modified, in 1876 and in 1884. During the Russo-Turkish War, on May 21, 1877, the representatives of the people assembled at Bucharest proclaimed Roumania's independence from Turkey, which was confirmed at the Berlin Congress of 1878; on March 14-26, 1881, a law was promulgated establishing Roumania as a kingdom. After the Great War a new C. was adopted on March 28, 1923, to meet the needs of a much aggrandised Roumania which now includes in addition to the Old Kingdom, Transylvania, Bessarabia, and the Bukovina. The Roumanian parliament consists of two chambers, a Senate of 170 members including the heir to the throne, 4 for the universities, and 19 bishops; and a Chamber of Deputies of 347 members. Every citizen, 21 years of age, who pays taxes is an elector of the Deputies. A feature of the 1923 C. which is somewhat unusual is the creation of a body called the legislative Council charged with the preparation for the other two Houses of all legislative and non-financial measures of administration. The king may suspend all laws passed by the Chamber of Deputies and the Senate. The executive is in the hands of a council of ministers, of which the prime minister is president. These numbered fifteen in 1928.

Russia.—Strictly speaking, there is now no such state as Russia, this name being only a geographical expression. Old Russia proper is now called the Russian Socialist Federal Soviet Republic (R.S.F.S.R.), and it and six other republics formed from territories of the old Russian Empire together make the Union of Socialist Soviet Republics (U.S.S.R.). These other republics are the Ukraine (U.S.S.R.), White Russia (W.R.S.S.R.), Transcaucasian Federation (T.S.F.S.R.), Turkoman S.S.R., Uzbek S.S.R., and the Tadzhik S.S.R. The first C. of new Russia, after the Bolshevik revolution of Nov. 7, 1917, was adopted on July 10, 1918, and many alterations and additions were made in the course of the next five

years. The R.S.F.S.R. and the first three of the republics mentioned above set up the U.S.S.R. on Dec. 30, 1922, and the other republics adhered to the Union later, Tadzhik joining last on Dec. 5, 1929. The C. of the U.S.S.R. was ratified early in 1924. The eighth article of the C. declares that the supreme organ of authority in the U.S.S.R. is the Congress of Soviets. This elects the Union Central Executive Committee and the Union Council of People's Commissaries. The Central Executive Committee is, in the interim between Congresses, the chief legislative, administrative and judicial authority, and it is convened three times a year. The Union Council numbers 450 members, and to ensure racial representation there is a body known as the Council of Nationalities of 135 members, which represents the autonomous republics and regions dependent on or within the seven large republics. These two bodies elect a presidium, or standing committee, which deals with current business, this committee numbering twenty-seven. Each of the seven republics which form the U.S.S.R. has its own central executive committee and Council of People's Commissaries. It retains the right of free withdrawal from the Union. The C. of the U.S.S.R. (and the Cs. of its constituent republics) is so drawn as to assure the rules of the 'Workers' Soldiers', and Peasants' Deputies,' or, in other words, the 'Dictatorship of the Proletariat.' A unique feature of the C. is that entry into the U.S.S.R. is not confined to the territories of the old Russian Empire, 'but is open to all Socialist Soviet Republics, both now existing and which may arise in the future.'

Santo Domingo, or the *Dominican Republic*, enjoys a much changed C., by which the legislative power is vested in a National Congress, consisting of a Senate and a Chamber of Deputies both chosen by direct vote for a term of four years. The executive is vested in a Cabinet of President and eight Ministers.

Siam is governed by the King advised by a Cabinet of Ministers, and since Jan. 10, 1895, assisted by a Council of State composed of the Ministers of state and others, not less than twelve appointed by the Crown. At present there are forty members. The object of this body is to revise, amend and complete legislation. It has to meet at least once every week, and can appoint committees with the addition of competent outsiders who must not outnumber the members. The royal signature to its acts is indispensable, but in case of any temporary disability of the Crown it has

power to promulgate laws without the royal assent.

Spain.—The first modern C. of Spain was proclaimed June 30, 1876. Its principles were: Spain to be a constitutional monarchy, the executive vested in the king; and the legislative power in 'the Cortes with the King.' The Cortes was to be composed of two chambers of equal authority, a Senate and the Congress. The Senate was to be composed of: (1) senators in their own right; (2) 100 life senators nominated by the crown (both categories not to exceed 180); (3) 180 senators elected by the corporations of state (the communal and provincial states, the church, the universities, academies, etc.) and by the largest tax-payers. The elected senators were to be renewed by one-half every five years, and altogether every time the sovereign dissolves that part of the Cortes. The law of Aug. 8, 1907, makes voting compulsory for all males over twenty-five years of age. The number of members in the last Cortes was 417. Each province of Spain has its own parliament, the Diputación Provincial, the members of which are elected by the constituencies. These Diputaciones meet in annual session, and are permanently represented by the Commission Provincial, a committee elected every year. The position in Spain at the moment (1931) is in doubt. In 1923 the late General Primo de Rivera formed a military Directory and suspended the C. The succeeding head of the Directory, General Berenguer, promised a return to 'normality,' which may be presumed to include representative gov.

Sweden.—The present C. of the kingdom of Sweden consists of: (1) The C. of June 6, 1809; (2) the amended regulation for the formation of the diet of June 22, 1866, as amended in 1909 and since the Great War. The king must belong to the Lutheran Church, and exercises his constitutional power jointly with the council of state, or, in legislation, in concert with the diet: every new law requires the assent of the crown, but the right to impose taxes belongs to the diet, which consists of two chambers, both elected by the people. The First Chamber is composed of 150 members elected by the Landstings (provincial councils) and the six municipal corporations of the towns not already represented in the Landstings. The constituencies are divided into eight groups, in one of which an election takes place annually in September. Members of this First Chamber must be over thirty-five years of age, and must have possessed a minimum property qualification:

they are elected for a term of eight years. The Second Chamber numbers 230 members, elected for four years by universal (male and female) suffrage; every Swede over twenty-three years, and not under any legal disability, has a vote. The method of election is proportional and members of both Chambers are paid a salary. The executive power is vested in the king, who acts under the advice of a council of state, the head of which is the minister of state.

Switzerland is a confederated republic, the perpetual neutrality and territorial inviolability of which were guaranteed at the Vienna Congress of 1815. The Federal Pact, drawn out at Zurich in the same year, remained in force till 1848, when a new C. was accepted without foreign interference, which in turn was superseded on May 29, 1874, by the C. still in force. The C. can be revised either by ordinary federal legislation, with compulsory *referendum*, or by direct popular vote. The federal Gov. is supreme in matters of war, peace, and treaties; it regulates the army, the postal and telegraph system, the coining of money, the issue and repayment of paper money, and the weights and measures. It provides for general revenue, and decides on import and export duties conforming to the principles embodied in the C. It legislates on matters of civil capacity, copyright, bankruptcy, patents, sanitary policy in cases of epidemics; may create and subsidize, besides the Polytechnical School of Zurich, a federal university and other higher educational institutions; and is also entrusted with the decision about public works relating to rivers, forests and the construction of railways. The legislative and executive powers belong to a parliament of two chambers, the Ständerat (State Council), and the Nationalrat (National Council). The first is composed of forty-four members, elected by the twenty-two cantons, two for each canton. The Nationalrat consists of 198 members representing the Swiss people, elected directly at the rate of one member for every 20,000 inhabitants. A general election takes place by ballot every three years. Every citizen of the republic when twenty-one years of age has a vote. Both chambers united are called the Bundes-Versammlung (Federal Assembly), and as such represents the supreme government of the republic. The people have a right to legislative action by means of popular initiative, and laws passed by the Federal Assembly may be vetoed by popular voice. When 30,000 citizens petition for the revision or annulment of a

measure passed by the legislature, or the alteration is demanded by eight cantons, the law in question must be submitted to the direct vote of the nation. For the decision on it, a majority, both of the cantons and the voters, is required. The chief executive is deputed to a Bundesrat (Federal Council) of seven members, elected by the Federal Assembly for three years. These members must not hold any office in the confederation or the cantons, nor engage in any calling or business. This executive body can alone introduce legislative measures on the deliberative councils, and can assist at their proceedings, but do not vote. The seven members of the Federal Council act as ministers, or chiefs of the seven administrative departments of the republic. The cantons and demi-cantons are sovereign as far as their independence and legislative power are not restricted by the federal C., they have their own local government and their own cantonal C. which is entirely based on the absolute sovereignty of the people.

Turkey before the Great War was an empire—the Ottoman Empire—at the head of which was a Sultan, who was at the same time Caliph, or the spiritual head of Islam. The fundamental laws were based on the precepts of the Koran, and prescriptions of the 'Hadith,' which is a code formed of the supposed sayings and opinions of Mohammed, and the sentences and decisions of his immediate successors, which are binding upon the sovereign as well as his subjects. In April, 1920, a *de facto* Gov. under the leadership of Mustafa Kemal Pasha (*q.v.*), was established at Angora, in Anatolia, this Gov. being called the 'Gov. of the Grand National Assembly.' This Gov. finally abolished both Sultanate and Caliphate (*q.v.*), and on Jan. 20, 1921, the Grand National Assembly passed the fundamental law which established a democratic C. This law declared that sovereignty belonged to the people of the country, now designated 'Turkey'; a republic, with a president at its head, was established, and all power was vested in a single chamber, the Grand National Assembly. The Assembly is now elected for four years, according to a revision of the C. made in 1924, and consists of 315 deputies. The President of the Republic must be chosen from the deputies, and he holds office during the life of the Assembly. The President chooses the Council of Ministers, which in 1930 numbered ten. Islam ceased to be the official religion of the republic, by a law passed in April, 1928. The code of civil laws is largely based on the Swiss model.

United States of America.—Most of the principles of the Federal Constitution of the U.S.A. are rooted in the past, though the C. itself dates only from Sept. 17, 1787. Its framers used their experience or knowledge of the working of the Eng. C., and adopted both the spirit and machinery of that C. The American C. contains seven original and nineteen amending articles, and entrusts the government of the nation to three separate authorities: the Legislature, the Executive, and the Judiciary. Article I. vests the legislative power in a Congress consisting of a Senate and a House of Representatives composed of two members for each state elected for six year terms, elected biennially according to the electoral laws of the different states, and prescribes the qualifications of senators and representatives. The representatives are chosen every second year by the electors of the different states, while two senators chosen by the electors represent each state for a term of six years, one-third of the Senators being elected every two years. As in the case of the Eng. parliament each House determines the rules of its proceedings, adjudges disputed elections, and punishes members for misconduct. The executive power is vested by Article II. in the President, who holds office for four years. He is elected by the Electoral College, the members of whom are appointed by each state in numbers equal to the number of representatives and senators returned to Congress by the state. No person except a natural-born citizen is eligible as President; nor is any one eligible unless he be at least thirty-five years of age, and have been fourteen years resident in the U.S.A. He is commander-in-chief of the army and navy, and of the militia in the service of the Union. A bill becomes law on passing both houses provided the President approves and signs it. If he returns the bill, which he may do, with his objections, the House of origination may proceed to reconsider it, and, if on reconsideration, two-thirds of that House agree to pass the bill, they may send it to the other House, together with the President's objections; if approved by two-thirds of that House it becomes law. A bill not returned by the President within ten days after presentation automatically becomes law, unless Congress by adjourning prevent its return. The President has the power, with the advice and consent of the Senate, to make treaties, provided two-thirds of the senators present concur. All revenue bills must originate in the House of

Representatives, but the Senate may propose or concur with amendments. Congress must assemble at least once annually. The Vice-President of the U.S.A., who holds office for four years is, *ex officio*, President of the Senate, but only votes on an equality of division. He becomes President, in case of the death or resignation of the latter, for the unexpired portion of the presidential term. Section 8 of Article I., which specifies the powers of Congress, is the vital part of the C. Beyond those powers Congress may not go, and the courts are made the ultimate arbiters on the constitutionality or otherwise of any law of Congress. The powers of Congress relate to war and peace; treaties and foreign relations generally; the raising and maintenance of the army and navy; the establishment of courts of justice; the regulation of international and inter-state commerce; currency and weights and measures; copyright and patents; post-office and post roads; taxation for the foregoing purposes, and for the general support of the Gov.; while by the amending articles XIV. and XV., additional powers are given for the protection of citizens against unjust or discriminating legislation by any state. The principal remaining clauses of Article I. forbid the grant of titles of nobility, and prohibit any state from making treaties or exercising other powers vested in Congress, or from passing *ex post facto* (or retro-active) laws.

Article III. provides for the judicial power, and gives the courts power to adjudicate on all matters touching the C. Article IV. provides for the admission to the Union of new states, and guarantees to every such state a republican form of gov. Article V. provides the mode of amending the C. as follows: whenever two-thirds of both Houses deem it necessary Congress must propose amendments, or, on the application of the legislatures of two-thirds of the several states, call a convention for proposing amendments; and such amendments are effectual as part of the C. if ratified by the legislatures of three-fourths of the several states, or by conventions in three-fourths of the states, according as one or other mode of ratification be proposed by Congress. Article VI. makes the C. the supreme law of the land, while Article VII. provides for the ratification of the C. There were thirteen original ratifying states, but only Delaware, New Jersey, and Georgia ratified unanimously. New York ratified in 1788 by thirty to twenty-eight votes. The amendments to the C. comprise nineteen additional articles. The principal of

these amendments guarantee religious freedom and freedom of speech; prohibit slavery, excessive bail, excessive fines, and the infliction of cruel punishments; maintain the popular right to bear arms; prohibit quartering of soldiers in private houses in time of peace; give a person accused of crime the right to a speedy trial; preserve the right of trial by jury in all cases where the value in controversy exceeds \$20; regulate the mode of balloting for the presidential elections; and guarantee the privileges and immunities and prescribe the status of citizens of the U.S.A. The eighteenth amendment (1919) made prohibition of liquor a federal concern, and the nineteenth (1920) admitted women to the franchise and government. The American C. is of the class termed by Prof. Dicey 'rigid,' as opposed to 'flexible,' in that its provisions (as appears from Article V.) cannot be legally changed with the same ease and in the same manner as ordinary laws. In its polity or distribution of legislative and executive powers, the American C. appears *ex facie* to be the direct antithesis to the British C., which gives unlimited authority to Parliament. This difference, however, is little more than formal, and it may be readily conceded that 'the institutions of America are in their spirit little else than a gigantic development of the ideas which lie at the basis of the political and legal institutions of England.' (On the origin of the C. consult chapter iii. of part I. of Lord Bryce on the *American Commonwealth*, 1911.) It is to be noted that the C. does not purport to be a complete scheme of gov., but presupposes the existence of states' govts., whose powers comprise the residuum of legislative functions over and above the common or national matters vested expressly in Congress. Yet, as Lord Bryce points out, there are strange omissions among the restrictions on state powers. States are not forbidden to establish or endow a particular form of religion, or educational or charitable institutions connected with any particular form of religion; abolish trial by jury; suppress freedom of speech or public meetings; limit the electoral franchise or extend the franchise to women, minors, and aliens. Indeed, the franchise is not uniform; in some states the payment of taxes, in others registration is obligatory; while some of the W. states admit as voters unnaturalised persons who have formally declared their intention to become citizens. The significance of the above noted omissions is that the authors of the C. evidently had no

desire for general uniformity of states' govts. or institutions, their main object being 'to secure the national Gov. against encroachments on the part of the states, and to prevent causes of quarrel both between the central and state authorities and between the several states.' Nevertheless, the different states have tended almost to an excess of uniformity, and their legislatures have evinced only the smallest desire for experimental changes in their institutions. Each of the forty-eight states has its own C., deriving its authority solely from the people of each state. Admission into the union is granted by special Act of Congress. Each state has an elected governor and other executive officers, a legislature of two houses, and a judiciary. The powers of both Houses are co-ordinate, though in some states money bills must originate in the House of Representatives. The states' senates have powers similar to those of the Federal Senate. Sessions are generally biennial; the governor has the right to summon an extraordinary session, but not to adjourn or dissolve. The governor is elected by the direct vote of the people for a term varying from one to four years. In all but two states he has a veto on legislation, which may, however, be rendered nugatory by an adverse vote of the two Houses. In some three or four territories the Federal Gov. prescribes the form of the local legislature and the President of the U.S.A. himself appoints the territorial governor and other important officials. The Dist. of Columbia (*q.v.*) is the seat of the U.S.A. government.

Uruguay, independent since Aug. 25, 1825, had a C. which dated from July 18, 1830. A new C. was adopted in 1919 separating state and church and introducing more democratic control. Women were added to the electorate in 1921. Proportional representation obtains. There are a Senate and a Chamber of Representatives, the latter elected for three years in proportion of one to every 12,000 qualified literate voters, 124 in all. Senators are chosen for six years by an electoral college which is elected direct by the people at the rate of one for each department, nineteen in all, of which one-third retires every two years. The executive belongs to the President, who is elected for a term of four years, and is assisted by a council of Ministers of nine.

Yugo-Slavia is one of the states, known as 'succession' states, formed after the Great War from the remnants of the Austro-Hungarian empire. It is called the Triune Kingdom

of Serbs, Croats and Slovenes, and is formed by the union of Old Serbia, with Montenegro, Bosnia, Herzegovina and Dalmatia, etc., territories for the most part formerly under Austrian rule. *Old Serbia*, whose independence from Turkey was established by the Treaty of Berlin in 1878, and which was proclaimed a kingdom by the Skuptchina on Feb. 22, 1882, was governed by a C. which was voted by the Great National Assembly on Jan. 2, 1889 (Dec. 22, 1888, old style). On April 6–19, 1901, a new C. was promoted by King Alexander, but abolished again after the assassination of that king, and on June 15, 1908, the C. of 1889 was revived. The executive power rested with the king, assisted by a council of eight ministers, who were individually and collectively responsible to the nation. The legislative power belonged jointly to the king and the National Assembly (*Narodna Skuptchina*). A state council was appointed partly by the king, partly by the Skuptchina, to decide complaints of private rights by royal or ministerial ordinance, questions of administrative competence and obligations, matters relative to departmental or communal surtaxes and loans, and the transfer of real property, the expropriation of private property for public purposes, the final settlement of debts due to the state, and which cannot be collected, the payment of extraordinary sums sanctioned by the Budget, and the exceptional admission to the privilege of Serbian citizenship. The Skuptchina was composed of 160 deputies elected by the people. In June 1921 a new C. was adopted, providing for single-chamber gov., with a Skuptchina of 315 members. This C. did not long endure, for on January 6, 1929, it was abolished or suspended by King Alexander, who dissolved the Skuptchina and has since ruled autocratically. A new democratic régime is promised by the king.

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Consubstantial, (Gk. ὁμοούσιος, Lat. *consubstantialis*), of one and the same essence or substance. The word is applied in theology to the Three Persons in the Godhead. The General Council of Niceæ (325 A.D.) pronounced in favour of the Athanasian view that the Second Person of the Trinity is ὁμοούσιος with the Father. This view is still held by the Gk. and Rom. Catholic churches, those of England and Scotland, and the leading continental Protestant churches.

Consubstantiation, identity or union of substance. In theology the doctrine of the real, substantial Presence of the Body and Blood of Christ, together with the bread and wine in the Eucharist. The term is opposed to the Catholic 'transubstantiation,' and means strictly the transition or union of two substances originally distinct into one common substance; substantial conjunction, or one substance out of two. The name is often erroneously applied to the Lutheran doctrine of the Real Presence. The doctrine should rightly be ascribed to John of Paris and Rupert, meaning substantial conjunction of the two, sometimes called Impanation. Luther's view was that after consecration of the bread and wine they still remain the same, but the Body and Blood of the Saviour are present in a supernatural manner, 'even as iron when red-hot is still iron though full of fire.' This sacramental conjunction should not be confused with the substantial conjunction.

Consuegra (Consaburum), a tn. of Central Spain in the prov. of, and 35 m. from the city of Toledo. Has an ancient castle and Rom. remains. It was partly destroyed by flood, Sept. 1891. Manufactures coarse cloth. Pop. over 8966.

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Consuetudinary, or customary law, as opposed to written or statute law, is that law which is derived from the customs of remote antiquity. Such is the common law of Scotland, and many of the principles of the English common law (*q.v.*) are based upon immemorial usage, *e.g.* the custom of borough-English (*q.v.*). See also CUSTOMS.

Consul (mercantile), a public officer maintained by the state in foreign countries for the purpose of supervising the commercial business of the state. Early in the twelfth century the custom grew up among the merchant city-states of Italy of sending such representatives to otherlands, and especially to the East. The custom extended to France, but then almost died out, to be revived in the sixteenth century. Even then it did not spread very quickly, and not till the nineteenth century did it become universal. A consul is primarily concerned with commercial and mercantile matters, and does not rank as a diplomatic agent. He cannot, therefore, enter on his duties without the sanction of the government of the country to which he is sent. His first duty is to exhibit his commission to these authorities, and to receive their permission to enter on his duties. This permission is given in an *exequatur*, which may be revoked at any time. Consuls are divided into consular agents, consuls general, consuls, and vice-consuls, and are immune from taxation unless they are themselves directly engaged in trade. The consulate is considered as a part of the British empire, and so all acts officially performed by the consul are valid in our courts of law. He can perform all the acts of a notary general. It is his duty to protect the rights of his countrymen in that part; to protect them from aggression and to secure the redress of grievances sustained by them. If he is unable to perform these duties he must report the matter to the British ambassador at the capital. In addition, he has to send home annually a report to the Secretary of State for Foreign Affairs containing the returns of the trade for the different ports within his consulate, and other matters of a similar nature. Of late years, it has also been his duty to send home a report of anything of importance to trade which may occur at any time, and these reports, published by the Board of Trade, provide valuable information to those interested in foreign trade. He holds, also, a general supervision duty over British ships and sailors. He inquires into offences committed on the high seas, and sends home any shipwrecked or distress-

ed sailors that may be cast on the coasts.

The privileges, immunities, and jurisdiction of consular officers of the U.S.A. are regulated by treaty and convention, and will be found meticulously set out in the Washington Regulations of 1896. The whole service was reorganised in 1906, the office of consul general being divided into seven, and that of C. into nine classes. Cs. are not exempt, like ambassadors, from the jurisdiction of the U.S.A. courts, for they are merely agents and not representatives of foreign governments. But the federal courts only have jurisdiction if Congress sees fit to give them such jurisdiction. Commercial agents in the U.S.A. are appointed by the President, and generally receive an *exequatur*. They are not consular agents, and form an entirely distinct class. Consular agents are merely deputy Cs. in districts which have no principal consul.

Consul, the title of the two highest ordinary magistrates in the Rom. state. After the expulsion of the kings



A CONSUL OF THE SIXTH CENTURY

in 510 B.C. this office was instituted, and the first to hold it were Lucius Junius Brutus and Lucius Tarquinius Collatinus. Probably the title was at

first that of *prætor*. The consuls were elected by the Comitia Centuriata, and until 367 B.C. only patricians were eligible. The inauguration of fresh consuls was accompanied with elaborate ceremonies, including a procession to the Capitol and a great sacrifice to Jupiter. The power of the consuls was very great, but it must be remembered that all their power was held in common. They gave their name to the year, and assumed a semi-regal state. Their insignia were the *toga prætexta*, the *stola curulis* and the twelve lictors, each carrying a bundle of rods (*fascēs*) with an axe in the centre. To the consuls belonged the supreme command of the army, the regulation of war and peace, the judicial headship, the disposal of the treasury, and the assembling of the senate. They could only be challenged when they again became private men at the end of their term of office. In cases of great danger, complete authority was given to a *Dictator*, or else absolute power was temporarily voted to the consuls by the senate. The consular power was gradually restricted. In 494 B.C., when the office was still confined to the patricians, the *tribuni plebis* were appointed, with right of appeal to them from the consuls. Then in 367 B.C., by the famous *Lex Licinia*, it was enacted that one consul must be a plebeian. Previous to this, the appointment of *censores*, in 443, had removed the business of the census from their hands, and in the same year (367) the appointment of *prætors* freed them from many of their judicial functions. During the civil wars, the consular office lost its original character, and it survived as the mere shadow of its old self in the W. until A.D. 534, and in the E. till 541.

Consulate of the Sea (*Consolato del Mare*), a famous code of maritime law, supposed to be a compilation of the laws and trading customs of various Italian cities (Venice, Pisa, Amalfi, Genoa) and the cities with which they traded (Marseilles, Barcelona, and others). The exact original date is not known, but the laws are thought to have been collected during the eleventh, twelfth, and thirteenth centuries. The earliest known edition was published at Barcelona, 1494. This was translated into English by Twiss, 'The Customs of the Sea,' forming an appendix to the *Black Book of the Admiralty*, 1874.

Consumption, in economics, is opposed to 'production,' with which it is closely related, for they may be respectively regarded as destroying and producing utilities. Thus the common division of C. falls into 'productive,' that which satisfies a

want which will lead to further efficiency of the consumer, and 'un-productive,' that is, of luxuries. The division of the constituent members of a community into 'consumers' and 'producers,' for purposes of discussing economic questions, is confusing, if not misleading; for all, in a modern state, with very limited exceptions, are both. State regulation of C. has, in the past, taken the form of 'sumptuary' laws, regulating the kind of goods, especially luxuries, such as clothes, etc., which classes of the community are allowed to adopt and use.

Consumption, see PHTHISIS.

Contagion (Lat. *contingere*, to touch), strictly the communication or transmission of disease from a sick to a healthy individual, caused by direct contact or by a third person who carries the contagion (poisonous principle) but escapes himself (mediate contact), or by touching articles bearing the germs of the disease. Contagious diseases are distinguished from infectious by reason that the latter can be transmitted by far more indirect contact, through the medium of excretions or exhalations of the suffering body, by spreading through the air or in water. Among contagious diseases are measles, small-pox, erysipelas, diphtheria, tuberculosis, rabies, venereal diseases. Scarlet fever is infectious, but probably not strictly contagious. See also BACTERIA and INFECTION.

Contagious Diseases Act, the short title of an Act passed in 1864 for the prevention of venereal diseases at certain specified naval and military stations. The Act provided for the appointment of hospital inspectors, and the imposition of penalties upon persons permitting prostitutes suffering from contagious diseases to resort to any house or room for the purposes of prostitution. The Act, together with a short amending Act passed in 1868, was repealed in 1886.

Contagious Diseases (Animals) Acts. Under these Acts considerable powers have been vested in the Ministry of Agriculture and Fisheries and upon local authorities for the administration of their provisions. The animals dealt with by the Acts are bulls, cows, oxen, heifers, and calves, sheep and goats, and all other ruminating animals, and swine; but the Ministry may by order extend the Acts to any four-footed beasts; and orders have long been issued relating to horses, asses, mules, and dogs, e.g. the Rabies Order of 1897 for muzzling dogs. The diseases to which the orders of the Ministry pay particular attention include cattle plague or rinderpest, contagious pleuro-pneu-

monia of cattle, foot and mouth disease, sheep scab, sheep-pox, and swine fever; but the Ministry may include others, and orders have been issued including rabies, anthrax, glanders, and farcy. The principal provisions of the Acts are those as to (i.) isolation of diseased animals; (ii.) regulation of the removal of diseased animals; (iii.) disinfection of markets, fairs, yards, or other places used for animals; (iv.) enumeration of ports at which foreign animals may be landed, and, generally, the use of precautions against the spread of disease from foreign animals; the slaughter of diseased animals or animals suspected of being diseased, and the conditions under which compensation may be awarded to the owner. The borough councils of the larger boroughs and, elsewhere, the county councils, are the local authorities upon whom devolves the obligation to carry out the provisions of the Acts and orders of the Ministry, and certain powers are conferred on the police for the purpose of enforcing the Acts.

Contango, see STOCK EXCHANGE.

Contarini, the name of one of the twelve families who elected the first Doge of Venice, A.D. 697. This noble Venetian family was one of great importance, among its noted members being several doges (from Domenico, 1043-71, who rebuilt St. Mark's, to Alvise, 1676-84), men of letters, painters, statesmen, and soldiers (seven C. fought at Lepanto):—

Andrea Contarini, doge from 1367 to 1382; ended the war between Venice and Genoa by reconquering Chioggia.

Ambrogio Contarini, Venetian ambassador to Persia (1473-77), published an account of his travels, 1487.

Gasparo Contarini (1483-1542), Bishop of Bologna and diplomatist, was made a cardinal by Pope Paul III., 1535. He was Venetian ambassador to the Diet of Worms, 1521, accompanying Charles V. on his travels, and concluding the emperor's alliance with Venice, 1523. As papal legate at the Diet of Ratisbon, 1541, he tried to effect a reconciliation between Protestants and Catholics. He published *Consilium de Emendenda Ecclesia*, 1537; *De Magistratibus et Republica Venetorum*, 1543.

Giovanni Contarini (1549-1605), was a Venetian painter of portraits and historical pictures. Among his works are: 'The Doge Marino Grimani adoring the Virgin'; 'Conquest of Verona by the Venetians'; and 'Baptism of Christ.' See Fontana, 'Sulla patrizia famiglia Contarini' in *Il Gondoliere*, 1843.

Conte, literally a 'story,' from Fr. *conter*, to narrate. Though not

yet Anglicised this word is often used in English literary criticisms. C. is strictly a generic term, covering both long and short stories, but is more generally used for a short tale dealing entirely with one set of ideas. The word occurs in France as early as the thirteenth century to mean an anecdote artistically told. It is especially applied to tales of wonderful adventure and to fairy-tales. De Maupassant's *Boule de suif* is a good example of this class of literature. Various collections made these Cs. popular in the Middle Ages, such as the *Gesta Romanorum* and *Historie Latinae*.

Contemporaneity, a term used in geology to signify the similarity of conditions under which strata have been deposited. Thus, in widely sundered regions of the earth's surface a similar succession of geological layers has been observed. This does not mean that similar layers were laid down at the same time, but that they occur in an order of succession which is fairly general. The term C. is therefore not applicable in its literal significance, and Huxley proposed to substitute the term *homotaxis*, expressing similarity of succession. The evidence for homotaxis is obtained from the study of fossils, which gives more reliable indications than an examination of the rocks themselves. Although homotaxial rocks are not necessarily literally contemporaneous, they are probably not far sundered as regards chronology.

Contemporary Review. This monthly publication was founded in 1866. In 1870 J. Knowles became editor, gaining as contributors, among others, Gladstone, Tennyson, Manning, Huxley, Ruskin, Froude, and Morley. The *Review* deals with political, theological, literary, and social questions. In 1913, it incorporated the *International Review*.

Contempt of Court, a term of wide import. Blackstone shortly defines it as consisting in a disobedience to the rules, orders, or process of a court, or against the king's prerogative. In this definition, however, the primary and secondary meanings are liable to be confounded. To disobey the order of a court is to flout the prerogative of the crown as the fountain of justice (see CROWN). Hence it is that so many and diverse acts may constitute C. of C., e.g. refusing without justification to answer questions properly put by counsel, abusing the judge, assaulting an officer of the court, insulting a litigant or his counsel whether in court or in a master's office, sending libellous or scandalous letters, or offering bribes

to a judge or any other officer of the court, tampering with a receiver appointed by the court to administer property, to publishing reports of cases *sub judice* (i.e. undecided), or where the hearing was *in camera*, and disregarding injunctions, decrees, orders, judgments, and so forth, where at all events it is in the power of the person so disregarding to carry out the order. C. of C. has always been regarded as a quasi-criminal matter. Hence the court has power to commit the offender to prison or impose a fine. Different courts have different degrees of power to commit. The King's Bench (*q.v.*) has the widest power. It can attach for contempts offered to inferior courts. But every superior court of record, *e.g.* any division of the High Court and the assize courts, has power to commit for every kind of contempt committed against its own authority. Other and inferior courts, like county and quarter sessions courts, are restricted to punishing contempts committed, as it is said, *in facie curiæ*, i.e. in open court. Punishment is not often severe for C. of C. In many cases, especially where the contempt is one of the court itself, an apology and payment of costs incurred by the contempt will be deemed sufficient extenuation, provided the offender makes reparation by doing that the omission of which constituted the C. of C.

'Contemptible Little Army.' During Sept. 1914 a British Expeditionary Force Routine Order was issued in which was published a copy of an Order, reputed to have been issued by the Ger. Emperor, referring to the British Army as 'General French's Contemptible little Army.' This description was naturally seized upon by all who were directly interested in securing recruits and it proved to be a most effective piece of propaganda. No 'title' among veterans is more honoured than that of an 'Old Contemptible,' and an Association of ex-soldiers now bears that name. During the war no steps seem to have been taken to verify the authenticity of the ex-Kaiser's statement, but in 1925 some British and Ger. Generals made exhaustive searches in official archives and newspaper files in an endeavour to establish the true source. All efforts, however, proved fruitless, and as a last resort the matter was referred to the ex-Kaiser at Doorn, who denied ever having used such an expression with reference to an Army the high value of which he had always appreciated. At the time, however, counter-propaganda was published

to the effect that the expression 'verächtliches kleines Heer' alluded solely to the small numbers of the British Army in 1914.

Content: (1) A term used in logic indicating the aggregation of attributes which constitute the meaning and are expressed in the definition of a given concept. (2) A paper signed by a ship's captain stating the ship's destination, stores shipped, etc., etc. It has to be given to the custom house officer before the ship can clear outwards.

Conti, House of, a cadet branch of the house of Bourbon-Condé. Eleonore de Roye married (1551) Louis of Bourbon, the first Prince of Condé, uncle of Henry IV., and brought him C. The title was renewed in favour of Armand de Bourbon (1629-66), second son of Henry II., Prince of Condé, younger brother of the great Condé. His son, François Louis de Bourbon (1664-1709), a gallant soldier, was elected king of Poland after Sobieski died (1697), but did not ascend the throne. The elder brother of François, Louis Armand (1661-85), fought in Hungary with Turenne and Prince Eugene. François Louis left an only son (1717-76), who was the last of the line. He died in exile before the Restoration.

Conti, Nicolo de, an Italian traveller of the fifteenth century. He acquired a knowledge of Arabic in Syria, and then started on his travels, first going to Babylonia and Bassora, then to the Malabar coast, Ceylon, Sumatra, Java and Southern China. For an account of his travels, see the work of Ramusio.

Continent (Lat. *continere*, to hold together), a word in physical geography originally applied to a large tract of land which holds together or contains. The word is now used in contrast to the great oceans, and does not, strictly speaking, include islands and semi-submerged tracts. Geographers recognise six continents in the world. These are Europe, Asia, Africa, N. America, S. America, and Australia. It is a curious fact that, with the exception of Europe and Asia, the continents are triangular and wedge-shaped, tapering from the N. in a south-south-easterly direction whereas the great oceans are polygonal in shape. Chamberlin and Salisbury offer this explanation in their *Geology*, 1906: 'The true conception is perhaps that the ocean basins and continental platforms are but the surface forms of great segments of the lithosphere, all of which crowd towards the centre, the stronger and heavier—the ocean basins—taking precedence and squeezing the weaker and lighter ones—the continents—between them.'

Each continent stands on a submerged platform called the *Continental Shelf*. This shelf is in the form of a terrace and apparently has been formed by the continuous beating of the waves. It is of variable width, the surface of the land sloping gently to soundings of 100 fathoms (600 ft.), until there is a sudden drop, called the *Continental Slope*, to 1000 fathoms. The *Continental Area* rising above the sea-level is estimated at $\frac{1}{8}$ of the earth's surface, and the *Continental Slope* is estimated at nearly half the remainder of the earth's surface. It is difficult to determine the exact elevation of a continent above the mean sea-level on account of the distortion of the sea-surface. Around the Chilian Andes it has been calculated that the sea is heaped up 2000 ft., whereas in other parts only a few hundred feet can be accounted for. It is now thought by geologists that the continental area has always formed permanent features of the earth's surface. The foundation structure of the continents is similar, and the continental rocks, granite, etc., are different from those of oceanic islands, so that an island, which, by the action of the sea, has been removed from its continent, may be recognised by its rocks and soils. The rocks and soils are due to movements in the past which took place periodically, but after long spaces of time. Each continent has a high mountain range, which forms a backbone to it, and from which rivers fall and drain the plains on either side. See GEOGRAPHY, ISLAND, SEA, DESERTS, and the separate continents.

Continental Congress. The C. C. of the U.S.A. was inspired by the advice and activities of the celebrated Samuel Adams in the initial stages of the resistance of the colonies to Grenville's Stamp Act of 1765. The historical importance of the meetings of the C. C. of America lies in the fact that their proceedings made manifest to the world the solidarity of the different states or provinces in their attitude towards England. The first C. C. which met at Philadelphia in 1774, was formed of delegates from all the colonies except Georgia. It was intended to be a federal body composed of states' representatives which should meet annually and whose functions were primarily to concert the best means for forcing 'the British Parliament to come to proper terms.' It had no executive powers, and indeed like all unconstitutional or provisional assemblies (*cf.* CONVENTION, *q.v.*) it had no certain *locus standi* or functions whatever. Its first act was to address a petition to George III. promising loyalty in consideration of the redress of the grievances, and in

the 'Declaration of Right' it set forth in characteristically democratic terms the collective opinion of the colonists in regard to their rights and liberties. No adequate response was met with from the British Ministry, and the second Congress, which met in 1775, proceeded with greater vigour, and gave reality to the *united or confederated* resolutions of the delegates by raising a continental army and appointing Washington as the commander-in-chief. The third Congress met at Philadelphia in May 1776, and by passing the celebrated 'Declaration of Independence' on July 4 severed the last tie of allegiance with Great Britain. Its position being by now more certain, it passed laws for the colonies, and assumed all the executive functions of a provisional govt. The C. C. continued to act as the federal legislative body until 1783, when the 'Articles of Confederation and Perpetual Union between the States' having been ratified by most of the states, provided, though in a vague manner, for a division of powers between the several states and a congress of delegates from the states. See *Cambridge Modern History*, vol. vii. *passim*.

Continental National Bank and Trust Co. of Chicago. The dates as such from Dec. 1, 1927. The capital stock amounts to \$35,000,000. The Company was formed by an amalgamation of the Continental and Commercial National Bank and the Continental and Commercial Trust and Savings Bank. Before the amalgamation the capital stock of the former company was returned at \$25,000,000, and that of the latter at \$5,000,000, while the surplus and the undivided profits were shown at \$20,000,000, \$6,157,000 and \$10,000,000, \$2,395,000 respectively.

Continental System, the method adopted by both France and England, and provoked by the Berlin Decree of 1806, is usually given this name by the Berlin Decree. Great Britain was declared to be in a state of blockade, and all commerce or intercourse with her was forbidden to France and to her allies. This decree, naturally, only declared a paper blockade, since the naval position of France and her allies forbade the adoption of any more stringent method. The order in council of 1807, issued by the British, naturally attempted to make reprisals. No vessel belonging to any neutral nation was to enter, or have commercial dealings with any French port or any port belonging to the allies of the French. In 1807 Napoleon issued the Milan Decree, which stated that any ship of any nation which had been searched by,

or had paid duty to the British, lost thereby its nationality and could be seized by the French or the allies of the French. The Russian War of 1812 was a direct outcome of the refusal of the Russians to comply with the decrees of Napoleon any longer. Napoleon himself found that he was continually forced to give permission for the breaking of his own decrees, since, without British goods, he himself could not get on. The scheme finally broke down, however, owing to the supremacy of Britain at sea, and her control of the markets of the world. The English system, however, was an essential cause of the American War of 1812.

Contingent Liability. In contradistinction to a debt or liquidated demand, a C. L. is one that only arises at the happening of a certain event, e.g. a covenant (*q.v.*) by a debtor to assign after-acquired chattels to secure a debt creates a liability on the debtor to assign the chattels as soon as he acquires them. Any C. L. to which a debtor is subject at the date of a receiving order against him or to which he may become subject before his discharge, is a provable debt, e.g. a surety has a right of proof in respect of his C. L. as surety for the debtor.

Contingent Remainder, in law, a term used for an estate in remainder upon a prior estate, limited to take effect, either to an uncertain or unascertained person or upon an uncertain event. If land is granted to A for life, and to B and his heirs at A's death, B's interest is called the remainder. A remainder given to an unborn or unascertained person, or upon some further contingency (when C shall return from abroad) is a 'contingent' as opposed to a 'vested' remainder (given to an ascertained person, and ready to go into effect upon determination of the precedent estate). Though such a remainder is an estate in expectancy (future), it is considered a present interest, and may be transferred to another party by modern legislation. See *Contingent Remainders Acts, 1845 and 1877*. Consult *Fearn's Contingent Remainders*; Jarman, *Wills*; Digby, *History of the Law of Real Property*, 1897; Gray, *Rule against Perpetuities*, 1906;

Continuation Schools are to be found, governed by diverse conditions, in Great Britain, Canada, Australia, America, Central Europe and Italy. At first organised in England as a system of 'not secondary but continued elementary education' for voluntary students, they were made compulsory on all wage-earners from fourteen to eighteen, unless they had remained at school

until sixteen, by the Fisher Education Act of 1918. This measure was an attempt to help to solve part of the problem of the half-tutored child entering the arena of the world, and instruction was to be not only educational but also social, moral, and physical. Young employees were to devote a minimum of 320 hours in each year to their classes. A detailed and interesting account of such an educational establishment is given in *A Day Continuation School at Work*, ed. by W. J. Wray and R. W. Ferguson, 1926. The whole system must necessarily come under revision if the proposed (1931) raising of the school leaving age becomes operative; meanwhile the L.C.C. and other educational bodies govern many C. Ss. where commercial and trade subjects are taught to adolescent workers.

In America the majority of C. Ss. came into existence after 1919, and wage-earners between fourteen and seventeen or eighteen who have not taken a high school course must put in an attendance at a C. S. for four to eight hours per week. In New York every employer must notify the proper school authority before engaging or dismissing an employee of school age, while the unemployed adolescent worker must report daily until fresh work is found and vouched for by the new employer. See *Continuation Schools in England and Elsewhere*, by Sir Michael E. Sadler, 1908; *The Day Continuation School in England*, by Edith A. Waterfall, 1923; *Day Schools for Young Workers*, by Dr. F. J. Keller, 1924; *Educational Opportunities for Young Workers*, by Owen E. Evans, 1926; *Contemp. Education*, by Paul Klapper, 1929.

Continued Base, or Bass (*Basso continuo*, or *Thorough-Bass*), the bass which continues right through the whole piece, from which, by the aid of figures, the accompaniment used to be played. An instrumental figured bass-part for pianoforte or organ. The Italian *continuo* is the same as our English term *thorough-bass* in its original and proper signification (not in the false one of 'harmony'). See *Grove's Dictionary of Music*, i. and v.; *Dunstan's Cyclopædic Dict. of Music*; Stainer and Barrett, *Dict. of Musical Terms*.

Continuity, a principle by which it is assumed that appreciable changes in progressive phenomena correspond to inappreciable changes taking place in inappreciable intervals. In psychology the principle involves the idea of a stream of consciousness; that no state of consciousness is fixed, but is arriving out of a previous state

and already developing into a subsequent state. In graphical mathematics, a function is said to be continuous at a point if it is defined in an interval containing that point and has a limit at the point which is equal to the function of the point. The function is said to be continuous throughout an interval when it is continuous at every point of the interval. In hydrodynamics, the principle of C. assumes that a fluid is absolutely homogeneous and devoid of viscosity; this leads to relationships which are only approximately true in the more practical science of hydraulics.

Contorted Strata. When geological folds are gentle, they are said to be *undulations*; when the strata are highly folded and twisted, they are said to be contorted. It is in mountain regions such as the Highlands, the Alps, the Andes, and the Himalayas that these folds are so close. Changes have as a rule taken part with regard to their structure, and their contained fossils have been badly crushed. Some mighty force has been at work, and it must have been parallel to the earth's surface. The cause of this force is unknown, but it may be that it was caused by the slowly cooling and therefore decreasing interior of the earth, having caused the surface to wrinkle and contract.

Contour, a term used in physical geography, and means an outline. C. lines are lines drawn on maps at fixed intervals, and indicate the form of the surface of the ground, each line passing through points at the same altitude above sea-level. These lines are drawn near to each other if the slope of earth is a steep one, and are further apart where the slope is less acute. The term C. is also used for other lines drawn on the same principle, such as those in which the figures employed are the same for all points on the same line, as for instance in isotherms, isobars, isoclines, etc.

Contraband (Fr. *contrebande*, from Lat. *contra* against, and Low Lat. *bannum*, a proclamation), a term applied to illegal traffic in general, and hence to goods smuggled into a country. More generally the term is reserved for 'contraband of war,' the name applied to certain commodities, which, during time of war, it is forbidden for neutral nations to supply to either of the belligerents. C. of war includes, without any doubt, all directly military implements, such as guns, ammunition, tents, and military stores of all kinds. But unless there are special treaties between nations, which give an accurate definition of the term, much doubt is apt

to arise as to the further use of the term. It is clear that articles which could only be used for peace purposes must be excluded, but there are a great number of things which, while normally so used, might give one army a distinct advantage over the other. In 1904, during the Russo-Japanese War, Russia contended that coal, flour, grain, rails, and wood and iron beams were all C. if directed to a belligerent, whether they were to be used for warlike purposes or not. Russia further claimed the right to seize any coal ship cruising in waters near the scene of war, whether it was destined to one of the belligerents or not. Great Britain and America protested against almost all of these claims, and secured from Russia the admission that food-stuffs were only conditional, and not absolute, C.; that is to say that the destination in this case is more important than the nature of the goods. During the Napoleonic wars the British government insisted on the right of either belligerent to stop and examine neutral ships which were suspected of carrying C. goods. Unless it acts in contravention of the generally received customs of nations, the Admiralty Court (sitting as a Prize Court) of each belligerent has the right of deciding what is C. of war and what is not. Various agreements exist between the United States and European countries as to the various articles to be included, and the variations between these can only be seen by reference to the actual terms of the treaties. So far as ordinary trade is concerned, neutral powers may carry this on with either belligerent, except in cases of blockade. The Second Hague Conference came to no decision on the subject of C., but the matter was extensively dealt with in the Conference of London (1908-9). On the outbreak of the Great War, in 1914, Great Britain adopted the Declaration of London (*q.v.*) with certain modifications which were again varied in October 1914. Under these modifications, conditional contraband was made liable to capture on board vessels, even though bound for neutral ports, if the goods were consigned 'to order,' or if the ship's papers did not indicate the consignee of the goods, or if the goods were consigned to persons in enemy territory or in territory occupied by the enemy. Similar tests were applied to absolute contraband by an Order in Council of March 30, 1916. These, and other modifications adopted by the Allied Powers, altered the Declaration of London beyond all recognition, and it was eventually abandoned in July 1916 by another Order

in Council which declared that the principle of continuous voyage or ultimate destination should be applicable in both contraband and blockade. The justification for this departure lay in the fact that the relief of the civil population by such goods as foodstuffs might cause an increase to the military or naval forces of some other food-stuffs which the civil population would normally have consumed. This view, which regards modern warfare as effecting the whole of the population of a combatant, was held by eminent American jurists early in 1914. See Moore's *Digest of International Law*, 1906; Hall's *Rights and Duties of Neutrals*, 1874, and *International Law on Analogues of Contraband*, 1895; Birkenhead, *International Law*, sixth ed. 1927.

Contract Bridge, a modification of the card game bridge, introduced in 1912. See under BRIDGE.

Contraction, in physiology, a phenomenon which is peculiarly characteristic of the cells constituting muscular fibre. Under certain conditions, a chemical change takes place in the cell which alters its shape, diminishing its length and increasing its diameter. The result is a state of tension on the points of attachment of the cell to the adjacent tissue. In yielding to this strain the tissues give rise to movement in that part of the body. Thus the C. of the cells of the biceps flexes the forearm, while the C. of the extensor muscles tends to straighten it. C. may be *tonic*, when it is prolonged and equable; or *rhythmic* when the C. occurs in periods alternating with periods of relaxation. Tonic C. is often caused by changes in the muscle as a part of its life without any reference to nervous stimuli. Rhythmic C. is usually in response to stimuli conveyed by the nerves from the central nervous system. It appears probable, however, that some muscles have the power of alternately contracting and relaxing by virtue of their own constitution. Thus, warm strips of heart muscle, taken from the animal immediately after death, continue to show a rhythmic pulsation if kept warm and supplied with oxygen. If a muscle is too frequently stimulated, the accumulation of waste-products causes a lessened sensibility, which constitutes muscular fatigue. See MUSCLE.

Contractions, see ABBREVIATIONS, PALÆOGRAPHY.

Contract Note, the document which is sent by a stockbroker to his client specifying that a named amount of stock, shares, bonds, etc., have been bought at a stated price, together

with the amount of brokerage charged and the stamp necessary. It also includes the name of the broker and of the buyer, and the registration fee for entering the buyer's name in the company's books as a holder of shares. The British stamp duties on C. Ns. are on a graduated scale, from 6d. for stock or security valued at £5 and not exceeding £100, 1s. above £100 to £500, and so on to a maximum of £5 for over £20,000.

Contracts. A C. is an agreement enforceable at law. There must be at least two parties to a C., and they must be *ad idem* on the terms, i.e. there must be mutual assent; further, to constitute a C. there must be both the 'offer of a promise' or a proposal, and the acceptance of that offer or proposal. Cs. are divisible into (a) specialties or Cs. under seal, and (b) simple or parol. Specialty Cs. must be written, sealed and delivered; in practice they are always signed, though originally the seal stood for a signature. If delivery is made subject to a condition and to a person not a party to the deed, the document is known as an *escrow*, and only takes effect on fulfilment of the condition. A deed requires no consideration (*q.v.*), because it is said to import a consideration. Very often a deed merely gives more formal effect to a simple C., in which case the simple C. is said to be merged in it. Parties to a deed are *estopped* from denying the truth of statements contained in it, unless fraud, duress, or mistake be proved. Cs. made by corporations, with certain exceptions such as in matters of daily occurrence or the hire of servants, promises made without consideration, and leases for three years on which less than two-thirds of a rack-rent is reserved, or for any term over three years, are only enforceable if entered into by deed. Simple Cs. comprise every C. written, verbal, or implied from conduct which is not a specialty. A simple C. requires a consideration (*q.v.*) to support it. With certain exceptions where writing is required, no particular form is essential to a simple C. Certain simple Cs. must be in writing: these comprise (1) bills of exchange (including cheques) and promissory notes; (2) Cs. of marine insurance; (3) assignments of copyright. As a rule transfers of shares in registered companies (*q.v.*) should be in writing: they are also very often made under seal. Certain other simple Cs. are not enforceable unless evidenced by writing; although they may be good as a defence to an action, either by way of set-off or counter-claim. These include: (a) Under the Statute of Frauds, 29 Car. 2, c. 3, five classes

of Cs., which must be evidenced by some memorandum or note in writing, signed by the party to be charged, or by his authorised agent: (1) A promise by an executor or administrator to answer damages out of his own estate; (2) a promise to answer for the debt, default, or miscarriage of another, *i.e.* a promise of guarantee or suretyship; (3) an agreement in consideration of marriage (but not a promise to marry); (4) a C. or sale of lands or hereditaments or any interest in or concerning them; (5) an agreement not to be performed within the space of a year from the making of it. A C. to fall under (5) must be one that cannot by any possibility be performed within a year by either party. (b) Under sec. 4 of the Sale of Goods Act, Cs. for the sale of any goods of the value of £10 or upwards cannot be enforced unless the buyer has either accepted part of the goods sold and actually received the same, or given something in earnest to bind the C., or in part payment, or unless some note or memorandum in writing of the C. has been made and signed by the party to be charged or his agent. There are certain Cs. which the law will not enforce at all, and these include Cs. which are absolutely void, or only voidable at the option of one of the parties. Cs. tainted by fraud are voidable at the instance of the defrauded party, but, of course, may be enforced against the fraudulent party, because no one may take advantage of his own fraud. A void C. is one which has no legal validity at all, and in fact may be said to be only the semblance of a C.; for example, where A contracts to sell a thing to B under the impression that B is C. Some Cs. are said to be void for illegality as being either contrary to public policy or forbidden by statute, but not all void Cs. are illegal. The distinction between void and illegal Cs. is important, because unless the cause of avoidance is pleaded the court will not set the C. aside, but in the case of illegality the court will refuse to enforce the C. of its own motion. Illegal Cs. include, *inter alia*, those of an immoral nature, agreements for the sale of public offices, agreements to defraud the revenue, agreements contrary to the course of justice, *e.g.* Champertons (*see* under CHAMPERTY) agreements, agreements to commit a crime. A betting C. is not illegal; it is merely unenforceable (*see* under GAMING). A C. in general restraint of trade is void, *i.e.* a man cannot validly undertake not to carry on any business at all. These Cs. frequently arise where one person has learnt his profession or trade from another and is about to

set up in competition. Such a person may validly restrain himself from carrying on a particular business for ever or anywhere, but a court of equity requires that the C. be reasonable in all the circumstances. Not every person has capacity (*q.v.*) to C. Cs. for the loan of money, or for goods supplied, other than necessities, and all accounts stated, are absolutely void if made with an infant. At common law, speaking generally, all Cs. with an infant other than for necessities, or in certain cases, Cs. deemed to be for the infant's benefit, were voidable at his option. In the case of voidable Cs., those which involved some continual obligation on the infant like partnership agreements, or Cs. to pay calls as a shareholder, were, and indeed are, valid against an infant on his reaching twenty-one, unless he expressly repudiates them; but those Cs. which did not involve any continual obligation were only binding on the infant on his attaining twenty-one if he ratified them. The question as to what constitutes necessities is one of fact, depending on the circumstances of each particular case. A dress-suit would in all probability be necessities in the case of a university undergraduate; but might not be so for the infant son of an artisan. Cigars and tobacco have been held not to be necessities; but the hire of a horse where the doctor has ordered riding exercise has been held to be a C. for necessities. A married woman can contract to the extent of and so as to bind her separate estate only; but no remedy is enforceable against a married woman personally. If 'restrained from anticipating' her separate property, she cannot, generally speaking, render it liable to her debts. A C. with a lunatic is voidable only if the other party knowingly took advantage of the lunatic's state of mind. But in any case a lunatic may ratify a C. on regaining his sanity of mind, so as to bind himself on it. A C. with a corporation, in order to bind the corporation, must generally be under the corporate seal. The exceptions are: (1) In Cs. relating to matters of trifling importance or daily occurrence or urgency, where they fall within the scope of the business of the corporation; (2) simple Cs. made by the agents of trading corporations and relating to the objects for which the corporation was created; (3) companies registered under the Companies (Consolidation) Act, 1929, may validly enter into Cs. in writing, or by parole in cases where such Cs. would be valid if entered into by private persons. Cs. by an urban district council of a value exceeding

£50 must be under seal. In any case a corporation can enforce its Cs., whether under seal or not. As to the assignment of rights under a C. (see under CHOSE IN ACTION). The assignment of duties or liabilities under a C. is only allowable with the consent of the creditor or party to whom the duties or liabilities are owed. A breach of C. necessarily gives a right of action for damages. Where the breach goes to the root of the C. the injured party may treat the breach as a discharge of his own liability under the C. and resist any action on the C.; he may also sue or counterclaim for damages, and claim payment for any work done by him in pursuance of the C., provided the C. be severable. In some cases, generally agreements for the sale or purchase of an interest in lands, he may bring an action for specific performance (*q.v.*). But where the breach is partial only, there is no right to rescind, unless the parties have expressly agreed that breach of a single term shall give a right to rescind, and in any case if one party shows clearly during the subsistence of a C. his intention no longer to be bound by it, that of itself gives a right to the other to consider himself exonerated from further performance. Damages for breach of C. are assessed so as to place the injured party as far as possible in his original position. The general rule is that damages should be such as may fairly and reasonably be considered as either arising naturally from such breach of C., or such as may reasonably be supposed to have been in the contemplation of both parties at the time they made the C. as the probable result of the breach of it. Damages may be given for prospective or anticipated as well as for loss already sustained. A C. is terminated either by agreement, or by performance, or by breach tantamount to discharge of the other party, or by lapse of time. A substituted agreement so as to terminate the original C. must be supported by consideration (*q.v.*). Lapse of time bars the right to sue on a C., though the C. remains valid and subsisting for all other purposes (see LIMITATIONS, STATUTES OF). Cs. to do impossible things are void, *ab initio*, where, too, the performance of a C. depends upon the continued existence of a given person or thing. There is always implied in the C. a condition that impossibility of performance arising from the death or loss of the thing excuses performance where it is clear that the parties must have known, *ab initio*, that its existence was essential to the C. Fraudulent misrepresentations, *i.e.*, false repre-

sentations of fact made with knowledge of their falsity, discharge the injured party from the C., and give a right to sue for damages (see FRAUD). An innocent misrepresentation as to a material fact gives a right to rescind; but not a right to damages, except (a) as to misstatements in a company prospectus in reliance on which the injured party has taken shares; (b) an agent who induces another to contract with him by representing himself as vested with an authority he does not in fact possess, may render himself liable to an action at the suit of such other person. Unilateral error will not, as a rule, excuse the party making the mistake from his liability under a C. A person must take the consequences of his failure to express himself according to his own intentions, if what he did say would have led any reasonable man to form the conclusions arrived at by the other party as to his meaning. But where the error was induced by the other party, the mistaken party will be entitled to rescind. A mutual mistake as to the identity of the thing about which a C. is made would render the C. null and void (see MISTAKE); and generally, where a mistake is mutual, a court of equity can amend the C., and rectify it in accordance with the true intentions of the parties. Cs. induced by undue influence and duress are voidable at the option of the injured party. See Leake, *Contracts*; Anson, *Law of Contract*; Stevens, *Mercantile Law*.

Contralto, an Italian term in music to denote the lowest or deepest kind of female voice, the compass extending from F or G below the middle C to F or G above the treble staff. In tone it is serious, tender, and rich, and has peculiar powers of expression, the low C. being specially marked by its fulness of tone. French and German musicians did not utilise this voice, but Rossini and other Italians recognising its beauties adopted it, and it is now used by almost all nations in their choral music.

'Contrat Social' (Social Contract), the title of Rousseau's chief work published in 1762. It described the theory held by certain reformers that a contract should exist between the sovereign and the subjects, and that govt. should be carried on with the consent of the subjects. The work is divided into four parts dealing with societies, the sovereign and his rights, govt., and social institutions respectively. It did a great deal to bring about the French Revolution.

Contributory Pensions is the name applied to those pensions to which the aspirant contributes from salary or wages a certain agreed percentage

during working life time. There are many instances of C. P. schemes in the British Empire and U.S.A., and there is a marked tendency towards an increase of them. The British Civil Service pensions are not, however, fixed on a contributory basis, although it is generally, but not officially, recognised that the scales of emolument in the various grades have been fixed with the knowledge that in ordinary circumstances a pension follows at sixty years of age. In the teaching profession, the Universities and Education Authorities have, as a rule, based their pension schemes on contributory lines. Old established business houses, banks, public utility companies and insurance companies have done the same. The contribution is made by the simple process of deducting the required amount from the monthly salary payment. By far the greatest undertaking which has yet been attempted in respect of C. P. is that of the Brit. Govt. with the Widows', Orphans' and Old Age Contributory Pensions Act, 1925. By this Act all contributors to the Insurance Scheme, male and female who were between sixty-five and seventy years of age on Jan. 2, 1928, or who have attained the age of sixty-five since that date, are entitled to an old age pension of 10s. per week, irrespective of means (provided that they had been continuously insured for not less than five years). A similar pension is payable to the wife of a contributor entitled to such a pension as from the date her husband gets his pension, or if she has not then attained the age of sixty-five, as from the date on which she attains that age.

Contreras, a small village about eight miles from Mexico City. In the early part of Aug. 1847 Major-General Winfield Scott, of the American army, pitted his forces against the defending Mexicans, and after a stirring battle, put his enemy to rout. The victories of Churubusco (*q.v.*) and Molino del Rey quickly followed, and the fortified hill of Chapultepec succumbed. On Sept. 17, the city of Mexico flew a white flag, and the American soldiers occupied the town.

Contrexéville, a vil. in the dept. of Vosges in France, on the R. Vair, which is a trib. of the Meuse. It is noted for its mineral springs whose temperature is 52.7° F. Situated at an alt. of 1480 ft. Pop. 870.

Control, Allied, was the term applied during (and for some time after) the Great War to that single control which was exerted in certain services, apart from naval and military, for the common good of the Allied peoples. The influence of the Great War was

felt in the most remote corners of the five continents, and there were moments when the actual feeding of millions of people caused the utmost anxiety to the Govts. concerned. At the beginning of hostilities tentative efforts, at once timid and limited, were made towards some sort of common organisation. In August 1914, the *Commission Internationale de Ravitaillement* (C. I. R.) was established in London. Representatives of the buying departments of the Allies were members of this Commission, which proved its usefulness from the start. It placed orders with British manufacturers who turned out all kinds of war equipment—uniforms, guns, munitions, etc. It provided a certain check on exploitation and kept down prices by the elimination of unnecessary competition. In placing orders the C. I. R. had due regard to the separate needs of the different Allies. In short, this Commission was a British organisation set up to assist and watch over Allied purchases in the British market. Much of its effectiveness was due to the fact that it was backed by British credit. But the Allies' great effort in control is perhaps best represented by shipping, and the control which was eventually established in this service will go down to history as the classic example of A. C. Up to the end of 1917 each country was its own purveyor of transport. This was effected in two ways: (1) by requisitioning or commandeering of national tonnage (Great Britain took over the British railways from the beginning of the War); (2) by chartering neutral tonnage in the open market. This system was, however, modified in certain respects, as Great Britain, having more national tonnage at her disposal than the other Allies, was able to allot certain tonnage to France and Italy for the conveyance of war material. On Dec. 3, 1916, an agreement between the British and French Govts. was reached, embracing several important decisions. It was provided that: (1) Monthly statements should be exchanged between the two Govts. showing the employment of each other's shipping; (2) transport of Fr. wheat (all the ships for which were to be provided by France) should be arranged in conjunction with the Wheat Executive—another branch of A.C.; (3) Ships taking coal to France should return with pit props and ore to England; (4) chartering of neutral steamers should be managed through an Inter-Allied Bureau in London. By the end of 1917, the British Ministry of Shipping (a war-time organisation) had performed its work so efficiently

that every British ship was under its control both as to its cargo and its destination. The ruthless campaign which Germany was waging by submarine on Allied shipping caused the efforts of the Allies to be still further extended in watchfulness and effectiveness. In Paris, on Nov. 20, 1917, was held the greatest conference which had hitherto taken place of representatives of all the Allied nations. Its outcome was the establishment of the Allied Maritime Transport Council. This became the supreme instrument of A. C. in shipping. For some time after the formation of the A.T.M.C. the actual shipping arrangements proceeded on the old lines, but the agreement mentioned above had already tended towards single control. The Wheat Executive was already buying and distributing on an Allied basis. The A.T.M.C. gradually assumed supreme command and performed its functions admirably to the end of the War. See *Allied Shipping Control*, Salter.

The term A. C. was also applied to certain services performed by the Allies' Commissions of Control in Germany and other ex-enemy countries in the way of supervising the carrying out of those clauses of the Treaty of Versailles which provided for the reduction of ex-enemy forces to a definite total of effectives, and for the limitation of their munitions output.

Controlled Establishments were those industries which came under State control during the Great War. At the outbreak railways and shipping were taken over by the State, but the term, 'C. E.' was brought into use by the Munitions of War Act of 1915. Under this Act all the firms producing munitions became directly controlled by the Govt. 'If the Minister of Munitions considers it expedient for the purpose of the successful prosecution of the war that any establishment in which munition work is carried on should be subject to the special provisions as to limitation of employers' profits and control of persons employed and other matters contained in this section, he may make an order declaring that establishment to be a controlled establishment' (Munitions of War Act, 1915, Part II, Section 4). By the end of 1916 State control had extended beyond the munition factories into becoming a systematic supervision of all branches of national production, exercised under the D.O.R.A. (*q.v.*). By Feb. 1917, all the coal mines were under State control, and a Wool Control Board and a Cotton Control Board were established. The purpose of these was to check prices and control

the raw material. By 1918 the State control of industry was complete. After the Armistice, however, as many C. E. as it was practicable were de-controlled, and eventually State control disappeared altogether.

Controller of the Navy, was once an important official of the Navy Board whose duties related to the supply of material required by the Fleet. He was Chairman of the Navy Board till its abolition in 1832, when his title and duties were transferred to one of the Sea Lords of the Admiralty. Before the Great War, the Third Sea Lord was C. of the N.; but in 1912 the Controller's department was reorganised, its work distributed amongst other departments, and the title dropped. The Controller's department has never been revived, and its work is still (1931) distributed in accordance with the reorganisation of 1912. But when, with increase of Admiralty business during the War, Sir Eric Geddes joined the Board of Admiralty (1917), he was given the title of Controller. Sir Alan Anderson succeeded him as Controller when Sir Eric Geddes became First Lord; but in 1918 Sir Robert Horne joined the Board of Admiralty in succession to Sir Alan Anderson and took the title of Third Civil Lord; whereupon the title of 'Controller' was once more assumed by the Third Sea Lord and is still borne by him (*see also* ADMIRALTY).

Controller of Stamps is the short title given to the officer in charge of that branch of the Board of Inland Revenue which deals with stamps (other than postage stamps) and Joint Stock Companies. His full title is Controller of Stamps and Registrar of Joint Stock Companies, Business Names, Newspapers and Bank Returns, including the Stamp Offices, London Stock Exchange, and Lloyd's. The office of the C. is in Somerset House, Strand, London. (*See also* REGISTRAR.)

Convalescent Hospitals. These are institutions carried on in connection with ordinary general hospitals; they differ from convalescent homes in that medical treatment is an essential feature of a convalescent hospital. When patients are discharged from hospitals, it is expedient that they should live, for a time at least, in clean healthy homes in a fine neighbourhood, therefore they are sent for a time to such an institution in order to recuperate.

Conventicle, a term originally applied to a meeting of the monks in a monastery, but acquiring a special use at and after the Reformation as applied in a disparaging sense to meetings of Eng. and Scottish

Nonconformists, such as the Wy-cliffites and Covenanters.

Convention, a term applied by Eng. constitutional lawyers to an extraordinary meeting of the Houses of Parliament at a time of national crisis in contradistinction to a meeting in session initiated by the writ of the sovereign. Instances of such Cs. in English history are the parliament summoned by General Monk to restore Charles II. to the throne in 1660, and that summoned by the Prince of Orange in 1689 before he was actually made king of England. In Fr. history, the body which took the place of the national legislative assembly in 1792, proclaimed a republic, and in the course of its three years' duration passed a number of characteristically revolutionary measures, was called the National C. In military matters, C. denotes a treaty made between the commanders of two opposing armies concerning the terms on which a temporary cessation of hostilities shall take place between them. The last C. of this nature in which Great Britain has been concerned was the much-abused C. of Cintra made in 1808. In U.S.A. history the most celebrated C. was that presided over by Washington, which met at Philadelphia on May 14, 1787, at a time of crisis in the fortunes of the new confederation of states and the failure of Congress to meet the situation. Some twelve of the states (Rhode Is. alone excepted) sent delegates, among whom were such men as Madison, Sherman, Randolph, the Pinckneys, James Wilson, and Morris. The great work was the making of the U.S.A. constitution. In U.S.A. politics the term also applies to those huge meetings of party supporters which gather together in the summer preceding the year of a presidential election for the purpose of nominating electors. There are at the present day, besides the Democratic and Republican National Cs., the Prohibition party, Socialist party, Socialist-Labour party, and national Cs. *See also* under ELECTIONS.

Convention Treaties, *i.e.* treaties entered into between different states under which they each bind themselves to observe certain stipulations contained in the treaties. In 1843 two Acts were passed for giving effect to conventions between Queen Victoria and the king of the Fr. and the U.S.A. for the apprehension of certain offenders. The Act relating to France legalised a convention providing for the surrender of persons accused of murder, forgery, or fraudulent bankruptcy who may escape to France. The Act relating to the U.S.A. is similar in its nature, but the specified crimes include in addi-

tion piracy, arson, and robbery, but not fraudulent bankruptcy. *See* EXTRADITION.

Convergency, in mathematics, a term implying that an infinite series continually approaches a definite finite limit as the number of terms increases. Thus the series $1 + \frac{1}{2} \times \frac{1}{2} + \frac{1}{4} + \dots$ has a sum which is always less than 2, but may become greater than any assignable quantity less than 2 by sufficiently increasing the number of terms. The series is therefore said to be convergent, and to converge to the limit 2; this is otherwise expressed by saying that the sum of the series 'to infinity' is 2. Such a series as $1 + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \dots$ is said to be *divergent*, for the sum of the terms increases as the number of terms increases without limit.

Converse, in logic, the proposition which is obtained by turning the subject of another proposition into the predicate, and the predicate into the subject. Only universal negative and particular affirmative propositions can be so treated. For instance, if we assert that no birds are quadrupeds, it must be equally true that no quadrupeds are birds; again, if it be asserted that some Englishmen are scientists, it must, at least, be true that some scientists are Englishmen. On the other hand, universal affirmative and particular negative propositions cannot be simply converted. If we assert that all men are mortals, it by no means follows that all mortals are men; and from the assertion some men are not Englishmen, it cannot be concluded that some Englishmen are not men. The general rule is that nothing can be concluded about the individuals of a class unless the first assertion includes all the individuals. Valid conversion is therefore simply stating the same fact in a different order of words. In Euclid's geometry the propositions are of the universal affirmative type, so that a C. obtained by interchanging subject and predicate is not necessarily valid, and therefore requires a separate demonstration.

Conversion: (1) In law: (a) A wrongful act depriving another of his property permanently or for an indefinite time. The restriction to the literal or natural meaning of converting property to one's own use has long been discarded in favour of the wider notion of any unauthorised assumption of the powers of the true owner. (b) In equity, conformably to the maxim that equity considers as done that which ought to be done, the effect of words in a deed or will directing money to be expended in the purchase of land, or land to be sold and turned into money, is that

the money and land are considered for all legal purposes to be actually converted into land and money respectively. (2) In logic, a proposition is said to be converted when the subject and predicate are transposed while still retaining the quality of the proposition, e.g. 'some bilateral acts are contracts' is the converse of 'all contracts are bilateral acts.' This is called *C. by limitation*. When the converse is a proposition of exactly the same form as the proposition converted, the process is called *simple C.*, e.g. 'some voluntary associations are churches' is the simple converse of 'some churches are voluntary associations.' The process of first changing the convertend (proposition to be converted) into an affirmative proposition and then converting it simply—e.g. the inference that 'some invalid documents are sealed instruments' from the proposition 'some sealed instruments are not valid documents, through the affirmative proposition 'some sealed instruments are *invalid* documents'—is called *C. by negation*. (3) In theology: (a) divinely-produced spiritual change of heart or disposition, as a result of which the enmity in the heart towards God and divine law, and the obstinacy of the will, give place to a supreme love for God and His moral government, and to a general reformation of conduct. (b) Proselytism, or the act of making converts to a religious faith.

Conveyance, in law, denotes the deed by which are transferred various kinds of 'property' as defined by the Conveyancing Act, 1881. 'Property' for the purposes of a C. includes real and personal property, any interest in such property, any debt, chose in action (*q.v.*), or any other right or interest. The term C. also includes an appointment (*i.e.* the exercise of the right or power given by an earlier instrument to appoint any person as owner of property), a covenant (*q.v.*) to surrender copyholds, and a vesting declaration made on the appointment of a new trustee by virtue of which the ownership of property is transferred to the new trustee for the purposes of the trust. Cs. which simply transfer personal property are called assignments. Cs. by matter of record include private Acts of Parliament and grants by the Crown. The formal parts of an ordinary deed of C. of lands, which in these days have been, fortunately, shorn of much of their former remarkable verbiage, are: (1) The date and names of the parties; (2) recitals of relevant facts, such as the preliminary agreement and the vendor's title; (3) the *testatum* containing the *operative words*, or

words which direct attention to the object intended to be effected by the C.; (4) the recital of the consideration (*q.v.*), and receipt thereof; (5) the *habendum* showing the extent of the interest taken by the grantee; (6) reciprocal covenants (*q.v.*); (7) the signatures and seals of the parties.

Conveyancing, the art of preparing conveyances (*q.v.*) of real and personal property, of investigating the title of the vendors of property, of making wills and testaments, settlements (*see also* ENTAIL) of property, and of framing the various instruments which are necessary in passing property from one person to another, so as to effectuate the intentions of the parties. By the old common law freehold lands were conveyed by *feoffment* (or gift of a *fief*) completed by delivery of possession. A number of statutes, notably the Conveyancing Act of 1881 and the Land Transfer Act of 1875, materially simplified the extraordinary intricacy of the forms or precedents once used in C. Under the Land Transfer Act, 1875, real property may be conveyed by a short form presented by Rules, the transfer being entered in an official register, and a land certificate being delivered to the transferee after the title has been officially examined. By the combined operation of the Land Transfer Acts, 1875 and 1897, and the Order in Council made under those Acts, registration of title to lands in the county and city of London was made compulsory on sale, though the conveyance, as distinct from the registration, might if the parties elected, still be effected by themselves or their legal agents.

The tendency of land law reform in Great Britain for many years past has been to approximate the law of realty to the law of personality. The Law of Property Act, 1922, together with some six consolidating statutes, are designed to rid English land laws of the remnants of formalism and feudalism, and to introduce a revised and simplified system of deducing title. The scheme of the new Acts is experimental or tentative, the object being to make a trial of the revised system of conveyancing without registration over a period of ten years from Jan. 1, 1926, and, at the same time, if it proves successful, to provide machinery whereby registration may be made compulsory without the necessity of obtaining the consent of the county council of the area to which compulsory registration is to be applied. (Land Registration Act, 1925.) There have been many Land Transfer Acts, beginning with that of 1862, many of them

nugatory; and their purport was to make an interest in land transferable by conveyance by mere entry on a public register as shares are by entry on the books of a company. The Act of 1897 ordained that transfer in this way would be imperative; but this compulsory transfer by registration was suspended from immediate operation except to a limited extent. The Land Registration Act, 1925, repeals the Land Transfer Act, 1875, and the whole of the Land Transfer Act, 1897, except Part I, which is in turn repealed by the Administration of Estates Act, 1925. Under the L.R.A., 1925, an Order in Council may be made at any time after Dec. 31, 1925, extending the area of compulsory registration without any resolution of any county council and in the face of any resolution of any county council to the contrary, but subject to compliance with certain conditions. (See further under REGISTRATION OF TITLE). After 1925 estates capable of subsisting as legal estates (i.e. as opposed to equitable estates) are the only interest in land in respect of which a proprietor can be registered, and all other interests except 'overriding interests' (incumbrances, easements, etc.) and interests entered on the register before 1926 take effect as 'minor interests'; but all interests (except undivided shares of land as to which there can now be no legal estate) entered on the register before 1926 which are not legal estates are capable of being dealt with under the Act. As under the Act of 1897, three kinds of title may be registered: an absolute title, a possessory title, and midway between these, a qualified title; but only an absolute or a possessory title can be, in the first instance, applied for. In the case of leaseholds, there is a fourth kind of title, namely 'a good leasehold title' and application for this may be made in the first instance (Strahan's *Concise Introduction to Conveyancing*, 1927).

United States.—In marked contrast to Eng. forms, conveyances of real estate in the U.S.A. are very simple, printed forms, with blanks to be filled in either from some stereotyped style of words or according to the peculiar legal requirements of some state, being in common use. The conveyance of an absolute interest in land (see LAND LAWS) is effected by a *release deed* or a *warranty deed*. The *release* or *quitclaim* deed is a mode of conveying an independent title to land, but gives the grantee no greater interest than that of the grantor. If, however, the grantor has a good title,

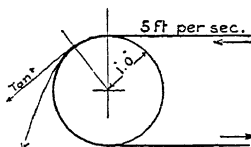
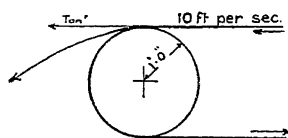
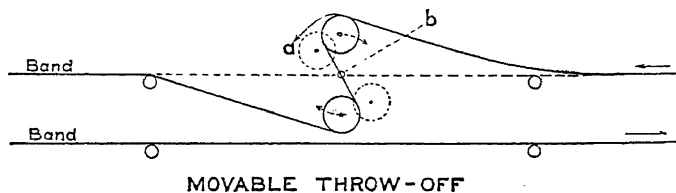
such form is as effectual as a deed with covenants of warranty. In other respects, such as the construction or interpretation of deeds, the U.S.A. law follows English law, and indeed the text-books of U.S.A. C. law will be found to be full of citations from Coke. All conveyances are recorded in a public registry. A party claiming directly under a recorded conveyance must produce the original deed; but one deriving title from him can rely on a certified copy of the original. See Washburn's *Real Property*. For the formal parts of a deed, see CONVEYANCE.

Conveyors and Elevators. Conveyors are mechanical appliances, the chief function of which is to transport material in bulk horizontally. Elevators are adapted more particularly to lifting materials, but either may perform the double office in some degree. Such machinery may be used for the loading or unloading of ships, for the transfer or lifting of material in mills, in gas-works, etc., and has generally the manifold object of reducing labour, time, and space. The magnitude of the quantities of material which lend themselves to mechanical handling will be appreciated when it is stated that the docks of the London Port Authority receive about 2 million tons of grain per annum, with plant capable of dealing with 2260 tons per hour if working at full capacity. Manchester has a grain elevator able alone to lift 350 tons per hour, with mechanical facilities for dealing with large quantities of cotton, while Swansea has plant at its docks capable of shipping 12,600 tons of coal per hour. It is evident that such large volumes warrant the installation of costly appliances for economic reasons and to ensure the prompt delivery of shipping from the condition in which nothing is earned.

Conveyors are chiefly used for the transfer of material to bins or hoppers, to breakers if it is desired to reduce the material, or from breakers to furnaces or retorts, as in iron or gas works, and for the transport of refuse, as coke or clinker. They are occasionally applied for the purpose of carrying bales, sacks, or other individually heavy items. *Band conveyors* are, as the name implies, formed of bands of a suitable substance, as leather, or canvas and rubber, upon which the material to be transported lies, and travels with the band which, supported at intervals of about 6 ft. upon rollers, is actuated at one end by a driving drum. This type of conveyor is singularly well adapted to the conveyance of grain over moderate distances, and was first used for this purpose in 1868 at

Liverpool. The linear velocity of the band may be from 150 to 200 ft. per minute for large coal and heavy material, up to 700 ft. for grain, the chief consideration affecting speed being regard for the band, which is liable to suffer severely if receiving harsh and heavy material when travelling at a high velocity. The devices used in connection with band conveyors are ingenious. If it is desired to take off at any point along the band, say for the purpose of filling bins in turn, the arrangement shown by the diagram is frequently used. This consists of a carriage supporting drums so placed as to cause the material to throw into the shoot at *a*, and by travelling the carriage along,

the point on the drum at which these are equal will be the point beyond which the material will no longer follow the circular path, and will be free to go forward under the influence simply of its linear velocity and of gravity. Whether the material be light or heavy, it will be subject to the same laws, with the reservation only that light and flocculent material may be checked by air resistance in some small degree. In the case of a band approaching the drum horizontally, the velocity, in feet per second, at which the material will leave the band rather than follow the drum's curvature will equal $\sqrt{R \times 32.2}$, in which R = radius of drum in feet. For velocities less than this the point



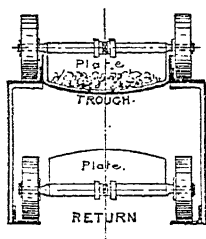
BAND CONVEYOR

the point of discharge may be varied at will. The drums, being mounted to swivel round the point *b*, may be thrown out of use if required, the slack of the band being taken up by a suitable device. A band conveyor may, however, discharge at a terminal drum into a stationary shoot. In either case there are points of design to be observed to ensure proper delivery. At a low speed the material carried may lie upon the band as it passes round the throw off drum for a considerable angle beyond the top-most point of the drum, while on the other hand at a sufficiently high speed the material may leave the band at once on reaching the curvature of the drum. Obviously, this depends upon the joint effect of gravity and the centrifugal effect due to the radius of the drum and its peripheral velocity,

beyond which the material will no longer rest upon the band, and will be free to follow its own parabolic path is defined as a height above the centre of rotation by $\frac{V^2}{32.2}$, V being velocity in feet per second. The point of departure at which the material goes forward in a tangential direction being thus determined, and its velocity being known, the curve it will make in falling may be set out on ordinary principles, the shoot or other receiver being suitably placed to catch it. The diagram given shows results for velocities of 10 and 5 ft. per second, with a drum of 2 ft. diameter. It should be observed that for very low speeds or materials of low friction coefficient, the material may slip on the band before reaching the point defined

above, and, acquiring a greater velocity, throw off somewhat earlier, and throw farther, than if it does not slip. The travelling band is commonly fed from a hopper, and as rough and hard material is liable to cause injury, it is essential that the material should be fed on in the direction of motion, and preferably at the band's velocity, to avoid rolling about till the proper speed is attained. The band is commonly kept at a suitable tension to grip the driving drum by a loose weighted pulley, steadied by guides, to take up any stretch of the band, which ought not to exceed one twenty-fifth part of its length. It is not desirable that this tension should be greater than is necessary to ensure grip. Band conveyors, though commonly horizontal, may be inclined to as much as 1 in 2 $\frac{1}{2}$.

Tray conveyors are formed of a series of trays connected to form a continuous chain. The material is carried forward upon the trays, which discharge either at the end or at any point desired, by an ingenious tipping



PUSH PLATE CONVEYOR

device. *Push conveyors* consist of a trough within which the material lies, and is pushed along by a series of push-plates attached to a chain running at about 120 ft. per minute, the weight of which, with its plates, is carried by wheels running on suitable rails, or without wheels, sliding upon rests. Discharge at any point but the end is effected by slides in the bottom of the trough, any one of which being drawn allows all or a part of the material to fall through. Push conveyors, when used to transport hot coke, are of the simplest construction, without rollers, the trough being formed with stopped, or rising ends, to retain water used for quenching purposes. *Cable conveyors* are of extremely simple arrangement, consisting of discs strung upon a running cable, working in a continuous trough, and are generally used for loose and light materials, being

run at low speed, not much exceeding 100 ft. per minute. *Bucket conveyors*, in which hanging buckets are spaced along a driving chain, being suitably supported by guides, are chiefly used where it is desired to arrange for horizontal movement for some distance, with vertical movement at a desired point, and are useful for lifting material above hoppers and finally distributing it to the receptacles by tipping the buckets automatically. They run at about 40 ft. per minute.

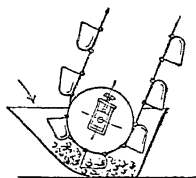
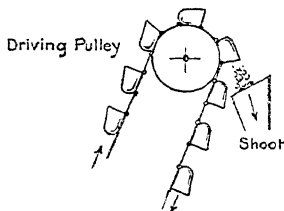
Elevators, commonly used in conjunction with conveyors, are generally of the bucket type, in which buckets of suitable form are spaced upon chains passing over drums at the top, and at the bottom. The whole is usually mounted in a box or cage, having guides for the support and control of the moving parts. The elevator buckets commonly dip into and scoop up the material to be raised at the bottom, and discharge at the top into shoots. For velocities of 250-350 ft. per minute, and clean material, the elevator may be vertical, in which case there will be an effective throw-off into the shoot, but for such material as coal, ore, or coke, for which, having regard to economy in power and life of the buckets, more moderate speeds of from 50 to 160 ft. per minute are desirable, the elevator should be sloped at 45-75° with the horizon. Similar principles to those governing the proper throw-off from band conveyors have to be observed with respect to the discharge from elevator buckets, with the additional precaution that the material discharged must clear the buckets in advance and pass unfaillingly into the shoot. If the material is at all damp or cohesive there may be difficulty in assuring this, for which reason elevators with a pronounced slope have an advantage. *Pneumatic elevators*, in which air under pressure or with suction is used, are applied for the raising and transfer of grain, considerable installations of this type have been established at seaports. London has elevators of this description able to deal with 1000 tons per hour, in addition to bucket elevators. Though convenient and readily adaptable to picking up at various parts of a ship's hold, the pneumatic method is not economical of power. An old form of elevator, known as the *Archimedeian screw*, now but little used, raises material by the rotation of a worm, or of a helically-formed surface, working in a cylindrical tube. By the screw's rotation the material is carried up the sloping case and discharged at the top. The pitch of the screw influences the inclination at

which the casing may slope. The angle which this makes with the vertical should be somewhat greater than the angle of pitch, plus the angle of repose of the material. The same device working horizontally is sometimes used as a conveyor. The power required to work C. and E., generally provided by electro-motors, can hardly be estimated satisfactorily by the direct application of simple principles. The work to be done is chiefly that of overcoming frictional resistances of very uncertain but considerable amounts, varying greatly with the condition of the mechanical arrangements, and the state of lubrication. In inclined coalelevators, for instance, the power absorbed may be as much as four times that corresponding to the 'work' of lifting the material, and in grain elevators about two and a half times. Power may be economised in fixed elevators by arranging that the buckets shall be filled by the material being run direct into them, instead of dropping to a lower level, from which it is picked up by the bucket dipping into it, against a considerable resistance in the case of ores and coke. For conveyors dealing with 50 tons per hour, the horse power absorbed may be taken approximately as for:

Band conveyors, grain . . .	$2 + \frac{L}{35}$
„ „ minerals . . .	$2 + \frac{L}{30}$
Push plate conveyors (with rollers) . . .	$2.5 + \frac{L}{25}$
Push plate conveyors (with-outrollers) . . .	$2.5 + \frac{L}{15}$
Tipping tray conveyors. . .	$2.5 + \frac{L}{20}$
Screw conveyors . . .	$3.0 + \frac{L}{8}$

L being the length of conveyor in feet. A variety of elevator for loading ships, known as *coal hoists*, receives the wagons from rails (which may be above the quay level), and, either raising or lowering them to a desired height, discharges the wagons by bodily tipping the contents down a shoot into the vessel's hold. They are commonly worked hydraulically, the act of tipping being effected by an oscillating ram. Hoists of this description are capable of dealing with wagons of 30 tons gross weight, and are made to work up to 700 tons per hour. They are also arranged to receive wagons at the quay level, and after lifting and discharge, to deliver them at a high level railway viaduct along which they gravitate to siding's level, an arrangement favourable to

speedy working. Steel belt conveyors, as their name implies, employ a steel band instead of the usual canvas or rubber belt. They are far superior to the other type, and much heavier loads can be supported upon them. The belt consists of finely tempered steel sheets about 300 ft. long, 1-2 ft. wide, and 1 mm. thick, riveted together to form a continuous band. The belt is not so flexible as the canvas or rubber conveyor, thus the sag due to its own weight is less, and con-



BUCKET ELEVATOR

sequently, fewer rollers are required to support it underneath. If boards are placed alongside it, the amount carried on it can be increased enormously. Another great advantage is that it can convey materials at higher temperatures than can the rubber conveyor, substances heated up to 200° F. not affecting the belt unduly.

Another type of elevator is that which is applicable to the transport of passengers from one level to another on the underground railway systems. Each step of this 'moving-stairway' or 'escalator' consists of a separate platform, shaped like an inverted 'L', on the underside of which are fitted two sets of small wheels which run on a continuous track that follows the contour of the stairway. At the bottom and top of the elevator the steps form a flat moving band, and thus facilitate the stepping on to and off them. The speed of the elevator varies from about 1 ft. per second up to about three or four times that amount. During recent years the use of con-

tinuous-belt conveyors in factories has been generally adopted, the articles which are assembled being passed down a long line of workers seated on either side; when the conveyor reaches the end, the finished article is taken off. This has enabled the rate of production to be increased enormously. See Zimmer's 'Mechanical Handling of Materials,' *Proc. Inst. of Civil Engineers*, vol. ciii., and *Trade Catalogues*.

Convocation (Lat. *convocatio*, a calling together), a term usually restricted to assemblies of the graduates of certain universities or of the clergy. In England, the name is particularly given to the assembly of the spirituality of the realm, which is called together by the archbishops of Canterbury and York, each within his own ecclesiastical province, pursuant to a royal writ. C. is summoned whenever parliament is about to sit, and is continued as long as parliament continues. The assemblies consist of two houses, the Upper and the Lower. The Upper House consists of the bishops and their archbishop; the Lower consists of the deans and archdeacons of every cathedral, the provost of Eton (in the case of Canterbury), proctors sent by the cathedral chapters, and proctors elected by the clergy of the diocese. The origin of C. is unknown, but by the time of Edward I. it had reached its fully developed form, the writ issued by the monarch to the metropolitans then being identical in form with that now issued. From this time till 1664 the clergy reserved the right of taxing themselves, and one of the chief duties of C. was the voting of subsidies to the crown. The independence of C. was marked until the reign of Henry VIII., when that monarch secured the doubtful admission from C. that it 'is, always has been, and ought to be summoned by authority of royal writ.' Owing to a lack of submission shown by the Lower House in 1717, C. was prorogued, and, except on unimportant occasions, its powers remained in abeyance until 1852. It then resumed its sitting, and its activity is steadily increasing. The addition of houses of laymen in each province has given the assembly a more representative character.

Convolvulus, the typical genus of the order Convolvulaceæ, and consists of about 170 herbaceous and shrubby plants growing in temperate and sub-tropical climates. Many of these are twining plants with large, white, trumpet-shaped flowers, and contain a milky latex. *C. arvensis* is the common bindweed found in Britain; it grows in a sandy soil, and the flowers have a sweet fragrance.

C. Scammonia, a native of the Levant, has a rhizome which yields a resinous juice, from which the purgative drug known as scammony is obtained. In the United States the plants are known as morning-glory, and in Britain the large C., which brightens our hedges, belongs to an allied genus and is technically termed *Calystegia sepium*.

Convoy (Late Lat. *conviare*, accompany), in the navy, the name given to one or more ships of war sent to protect a merchant fleet from the attacks of a national enemy or from pirates. In military service the C. is strictly a train of wagons stocked with provisions or supplies for war. The term is also used for a detachment of troops or escort appointed to protect such a train or sometimes people. See Hall, *International Law*. (See also DECLARATION OF LONDON.)

There are at the moment (1931) no settled rules on C. applicable to most countries. Practice, rather than law, has been the guide in the past. Each country has its own view, e.g. Great Britain and U.S.A. hold that neutral vessels sailing under C. of a commissioned vessel of their own country are liable to search by a belligerent vessel. Most continental countries take the view that such neutral vessels should not be liable to search, and that the conveying officer's declaration shall be accepted. The weakness of this view is that it presupposes that the commanding officer of a C. has personal knowledge of the cargo of the vessels convoyed, which by no means follows; the British and American opinion being that, however complete his good faith, an officer can hardly be expected to affirm of his personal knowledge that none of the vessels convoyed has contraband goods or enemy dispatches on board. When a vessel proposes to exercise the right of search, it is usual to fly the colours and fire a gun as a signal to the merchant vessel. Towards the end of the Great War, owing to Germany's unrestricted submarine campaign, practically all ocean-going vessels voyaged to or from Great Britain in Cs., and such Cs. included neutral vessels. If naval warfare in the future takes the form it eventually assumed in the Great War, the question of C. is likely to become prominent if neutral states include nations with a large sea-carrying trade (Birkenhead, *International Law*).

Convulsionaries, see JANSENISM.

Convulsions, involuntary contractions of muscles usually under conscious control. In the adult they are generally the result of brain affections. In epilepsy there is total lack of consciousness during the C.; in

hysteria, consciousness is not lost, though the subject may simulate insensibility. C. may be caused by the introduction of some toxic agent into the blood; a special class of cases is where poisonous matter is retained in the blood through defective action of the kidneys. C. in infants are usually caused by digestive disturbances, and are apt to be dangerous if not promptly treated. The child should be at once immersed in hot water up to the neck with its head kept cool by wet cloths. This has the effect of restoring consciousness. A good dose of castor oil should be administered to aid in eliminating the disturbing substances from the digestive tract.

Conway, Conway, or Aberconwy, a seaport, mkt. tn., and municipal bor. of Carnarvonshire, N. Wales, on a steep slope at the estuary of the R. Conway, 12½ m. from Bangor, 22 m. from Carnarvon. It is the most striking old town in Britain. It is surrounded by strong walls with battlements and towers. C. Castle, one of the grandest feudal fortresses of Britain, was built by Edward I. (1284) to check the Welsh. It has very thick walls and eight vast towers. The Cistercian abbey (1185) was removed by Edward I. to Maenan, near Llanwrst. Its ruins are still to be seen, and the ancient church at C. is said to be substantially the abbey church; it has a magnificent fifteenth-century rood screen. Plas Mawr, an old Elizabethan mansion, is now the home of the Royal Cambrian Academy. The castle was held for Charles I. during the Civil War. The remains of the Rom. fort of Kanoviumare is 4½ m. from C. The site was excavated in 1926-7 showing that it was probably built about 112 A.D. Pop. 6506.

Conway, city in Arkansas and county seat of Faulkner County. It is on the Missouri Pacific Railway and is situated in the heart of a rich cotton-growing and agricultural district. Pop. 4600.

Conway, Moncreu Daniel (1832-1907), an American writer, clergyman and lecturer, born in Virginia; he was forced to leave his church on account of his views on slavery, and went to Cincinnati, where he edited *The Dial*, later editing *The Commonwealth* in Boston. In 1863 he went to England to lecture on the Civil War, in which he took the Federal side, and remained there till 1885 as pastor of the Religious (later Ethical) Society's church at South Place, London. His chief works are the *Life of Thomas Paine*, 1892; an edition of Paine's works, 1894-96; an *Autobiography*, 1905; and *My Pilgrimage to the Wise Men of the East*, 1906.

Conway, William Augustus (1789-1828), an Eng. actor, b. in London. His most famous parts were Shakespearean, including Othello, Henry V., and Mark Antony, and he created the part of Prince Zerbino in *The Noble Outlaw*, 1815.

Conway, Sir William Martin (b. 1856), an Eng. traveller, mountaineer, and writer, from 1901-4 Slade professor of fine arts at Cambridge. Travelled in the East, the Himalayas, the Alps, Spitzbergen and also the Bolivian Andes, when he ascended Sorata, Illimani, and Aconcagua, and explored the glaciers of Tierra del Fuego. Director-gen. of Imperial War Museum, 1917. Vice-pres. of Socy. of Antiquaries, 1918. Vice-pres. of Royal Geographical Socy., 1918. Trustee of Nat. Portrait Gallery, 1922. Pres. Kent Archaeological Socy., 1923. M.P. (Unionist) for Combined English Universities since 1918. His works include: *Climbing and Exploration in the Karakoram-Himalayas*, 1894; *The Alps from End to End*, 1895; *The First Crossing of Spitzbergen*, 1897; *Climbing and Exploration in the Bolivian Andes*, 1901; *Aconcagua and Tierra del Fuego*, 1902; *The Alps*, 1904; *No Man's Land*, 1906. *The Sport of Collecting*, 1914; *The Crowd in Peace and War*, 1915; *The Abbey of St. Denis*, 1916; *Mountain Memories*, 1920; *The Van Eycks and their Followers*, 1921; *Palestine and Morocco*, 1923; *Art Treasures of Soviet Russia*, 1925; *Giorgione as a Landscape Painter*, 1929.

Conybeare, John Josias (1779-1824), an Eng. scholar and divine. In 1807 he was made professor of Anglo-Saxon at Oxford, in 1812 professor of poetry there. He was interested in geology and chemistry, but his chief study was Anglo-Saxon. His *Illustrations of Anglo-Saxon Poetry* appeared posthumously in 1826.

Conyza, a genus of Compositæ, contains fifty herbaceous and shrubby plants found in Europe, Asia, Africa, and America. *C. squamosa*, the fleabane, or ploughman's spikenard, is common in Britain, and its volatile oil is used in driving away insects.

Cooch Behar, see KUCH BEHAR.

Cook, Edward Dutton (1829-83), an English writer and dramatic critic, born in London, the son of a solicitor, and at first studied painting and engraving. From 1867-75 he was dramatic critic to the *Pall Mall Gazette*, and from 1875-83 to the *World*. He wrote several novels, the best being *Paul Foster's Daughter*, 1861, and *The Trials of the Tregolds*, 1864; a melodrama, *The Dove and the Serpent*, 1860, in collaboration with Leopold Lewis; and also *A*

Book of the Play, 1876; and *Hours with the Players*, 1881.

Cook, Eliza (1818-89), an English poetess, *b.* in Southwark, who spent most of her life in London. She contributed to numerous periodicals, notably the *Weekly Dispatch*, and edited *Eliza Cook's Journal* from 1849 to 1854. In 1863, her health having given way, she received a civil list pension of £100. Several of her domestic lyrics, such as *God Speed the Plough*, *The Old Armchair*, *The Star of Glengarry*, and *Home in the Heart*, were very popular. Her works included four volumes of verse, 1835-45; *Jottings from my Journal*, 1860; and *New Echoes and other Poems*, 1864.

Cook, Frederick Albert (*b.* 1865), American explorer, *b.* at Callicoon Depôt, New York; in 1890 graduated in medicine at New York University. Surgeon to Peary Arctic Expedition, 1891-92; and to Belgian Antarctic Expedition, 1897-99; in 1903-6 led expedition to ascend Mt. McKinley, Alaska. He claimed to have made the ascent in 1906; and in 1909 claimed to have just returned from the North Pole. Sworn statements by companions and accomplices discredited his pretensions; and, after his alleged proofs of the latter feat were rejected by Copenhagen University, he sank into obscurity.

Cook, Captain James (1728-79), a celebrated navigator, *b.* at the vil. of Marton in Yorkshire. His father was a farm bailiff. C. was apprenticed when only a little over twelve to a haberdasher at a village near Whitby. He left him owing to a dispute and boarded a ship as collier's apprentice, and was very soon made mate. In 1755 C. joined the royal navy, and from now onwards his success in life was assured. He was appointed successively master of three ships and in 1764 was appointed marine surveyor of Newfoundland and Labrador, where he published his *Philosophical Transactions*. The charts and observations which he drew up on this expedition attracted the attention of the Royal Society, who invited him to take part in an expedition for the purpose of making an observation of the transit of Venus over the face of the sun. C. accepted their offer and set sail in the *Endeavour* with other scientific men, and on April 13 reached Otaheite, where he built an observatory for pursuing astronomical observations. From Otaheite C. proceeded to New Zealand islands, but found the natives hostile. From here he sailed to New Holland (Australia), and came in sight of Botany Bay; here the native tribes were again hostile, but nothing daunted, he took

possession of the coast in the name of Great Britain and called it New South Wales. C. was made captain on his return to England and put in charge of a second expedition. He now started out on the *Resolution*, a ship of 462 tons, with the object of discovering a great southern continent—a smaller ship, the *Adventure*, also accompanied him and the total crew consisted of 193 men. Did not succeed in finding the supposed continent. After travelling about the seas, C. eventually arrived at the Society Islands, where he stayed for the



CAPTAIN COOK

winter; afterwards he pursued his investigations still further and discovered the island New Caledonia. Arrived back in England once more, he was made member of the Royal Society and received the Copley gold medal. He had cruised for more than three years in the Pacific and southern oceans, and during the whole voyage he lost only one man through illness. His last fatal voyage was begun in the year 1776, and in company with Captain Clerke he attempted the discovery of the N.W. passage in the Arctic regions. C. had charge of the *Resolution* and Clerke of the *Discovery*. In the course of his travels, he discovered the Sandwich Islands, which he named after the Earl of Sandwich; he then proceeded to America, penetrating into what was afterwards called 'Cook's Inlet.' Prevented from proceeding any further by a wall of ice, he returned to the Sandwich Islands, where he unfortunately met his death in a dispute

with the natives about one of the boats of the *Discovery* which had been stolen. Treacherously felled by a blow, he was speedily despatched by the natives, and his comrades who could only find his bones, reverently laid them to rest in the deep. C., in addition to his achievements as navigator, performed great services for his country in his geographical and scientific investigations.

Cook, Joseph (1836-1901), an American lecturer and writer, *b.* at Ticonderoga, New York, and after studying at Yale, Harvard, and Andover, and in Germany, settled in Boston in 1874, where he gave his famous 'Boston Monday Lectures.' In 1880 he took a lecturing tour round the world, resuming his work in Boston in 1883. His lectures, which were largely philosophical attempts to harmonise religion and science, were very popular. He founded a religious monthly, *Our Day* (1888), and published eleven volumes of his lectures (1876-88) and several other works.

Cook, Rt. Hon. Sir Joseph, Australian free trade statesman, was *b.* at Silverdale, Staffs., England, in 1860, and at the age of nine worked in a coal-mine. Went to Australia in 1885, and in 1891 was elected for Hartley in the N.S.W. Legislature. He was Postmaster-General 1894-98; and Minister of Mines and Agriculture, 1898-99. Became member for Parramatta in Commonwealth parliament, 1901; and so remained for twenty years. He was Minister for Defence in Deakin's (*q.v.*) Govt., 1909-10. On the defeat of Fisher's (*q.v.*) Labour Govt. in 1913, C. became Prime Minister, with a majority in the House of Representatives, and a minority in the Senate, so that he was almost powerless; and after the elections of 1914 he had to resign. He was made a Privy Councillor in the same year. He held office under W. M. Hughes as Minister of Marine, 1917-20; and as Commonwealth Treasurer, 1920-21. Made G.C.M.G., 1918. He was a representative of Australia at the Versailles Peace Conference, 1919. From 1921 to 1927 he was High Commissioner in London for the Commonwealth; and in 1922 senior Australian delegate to the Third Assembly of the League of Nations. He was Australian delegate to Genoa International Conference, 1922.

Cook and Son, Thomas, a great English firm of travelling agents. The founder, Thomas Cook (1808-92), was born at Melbourne in Derbyshire, and was successively a gardener's help, a wood-turner, a printer, and a Bible-reader and local missionary. In 1836

he became a total abstainer and took a great interest in the temperance movement, founding the *Children's Temperance Magazine* in 1840. It was in connection with this subject that he first conceived the idea of organising parties for travelling. A meeting was to be held at Loughborough in 1841, and Cook persuaded the Midland Counties Railway Co. to take 570 passengers from Leicester at a return fare of one shilling, this being probably the first publicly advertised 'excursion.' This experiment was so successful that Thomas Cook continued to organise such parties, and gradually enlarged his operations, entering into a permanent contract with the Midland Railway Co. In 1845 he advertised an excursion from Leicester to Liverpool, the Isle of Man, Dublin, and Wales, and followed it up with one to Scotland; in 1851 and 1855 ran special trips for the Great Exhibition and the Paris Exhibition, respectively, and in 1856 organised his first circular tour on the Continent. In 1865 the business was removed from Leicester to London, where an office was opened with three assistants, one being John Mason Cook (1834-99), son of Thomas Cook. In 1866 the first tours to the United States were arranged, and in 1869 to Palestine, while the appointment of J. M. Cook as agent of the Khedival Government for passenger traffic on the Nile gave further scope for tours in the East. At the close of the Franco-German War of 1870-71, a party of American tourists was conducted to Paris by J. M. Cook, who became a partner in the firm, which thus received its present name in 1872. In 1882 the services of the firm were commissioned in the suppression of Arabi Pasha's rebellion, conveying Sir Garnet Wolseley and his suite to Egypt and transporting the sick and wounded. In 1884 it conveyed General Gordon to the Soudan, and later in that year the Gordon Relief Expedition, which included 18,000 troops. Shortly afterwards the firm organised the Mohammedan pilgrimage from India to Mecca and Medina. In 1889 the firm obtained the contract for all government conveyance on the Nile, and in 1891 celebrated its jubilee. In 1898 the Emperor and Empress of Germany made a tour to Palestine under the firm's protection, and numerous other royalties have made use of the unique conveniences offered by their organisation. On the death of J. M. Cook in 1899, the control of the business passed to his sons, one of whom, Frank Cook, was chairman until his retirement in 1929. A fusion of interests was arranged in 1928, be-

tween Thos. Cook and Son, Ltd., and its Associated Companies—including that of Thos. Cook & Son (Bankers), Ltd., and the Compagnie Internationale des Wagons-Lits et des Grands Express Européens, and the business was then organised on a greater scale than ever. The company owns extensive engineering and shipbuilding works in Egypt, operates a fleet upon the Nile, controls the major part of the tourist traffic of Egypt and Palestine, acts as carrying, shipping, and forwarding agent to India and the further East. It also conducts an extensive publishing business, consisting of guide books and books of travel, while its periodical, the *Traveller's Gazette*, has appropriate editions for each of eleven countries. The palatial headquarters of the firm are in Berkeley Street, W.1.

Cooke, Benjamin (c. 1734–93), English musical composer and musician, son of a London music-seller. He composed anthems and other sacred music, and also popular glees, *How Sleep the Brave, In the Merry Month of May*. See *Grove's Dict. of Musicians*, i.; Pohl's *Haydn in London*, ii.; Burney's *Account of the Handel Festival*, 1784.

Cooke, Sir William Fothergill (1806–79), an Eng. electrician, served in Indian army (1826–31), studied medicine at Paris and Heidelberg, and then took up telegraphy, going into partnership with Professor Wheatstone in 1837. They made a special study of railway signals, and in 1845 patented the single-needle apparatus. C. formed a company in 1846, and he and Wheatstone received the Albert gold medal in 1867.

Cookery, the art of dressing and preparing food for human consumption by the application of heat. The names given to different kinds of C., which are considered below, arise from the various degrees and kinds of heat to which the raw materials employed are exposed during this process. Cooking increases the value of food in numerous ways. Performed while the material is fresh, it considerably postpones the beginning of putrefaction, and it kills harmful germs which may have infested the substance. The process brings out the flavour of the raw material in such a way as to make it more pleasing to the palate, thus increasing appetite, and, by stimulating the flow of the gastric juices, materially aiding digestion. Lastly, and most important, the main aim of C. is, by recognition of and attention to the laws of chemistry involved, to render food more digestible than in its uncooked state. Research and experience have evolved various general principles which may be applied to

the various classes of food. One of the chief of these, for instance, applies to the coagulation of albumen, a substance present to a large degree in animal foods. Coagulation of albumen, as seen in the white of a soft-boiled egg, is desirable, and is always attained by exposure to a gentle heat, but continued exposure to a temperature above the boiling point results in the hardening of the albumen into a leathery substance extremely difficult of digestion. Thus in cooking meats, the aim of the cook should be to obtain a thin outer covering of this hardened albumen, which will prevent the escape of the meat juices by first applying considerable heat, but to prevent the toughening of the interior which would be consequent upon hardening of the albumen throughout, by removal to a lower temperature as soon as this protective shell has been formed. The science of C., to which considerable attention is now paid in schools, institutes, polytechnics, etc., under the general title of Domestic Science courses, is of comparatively recent origin, being practically a product of the nineteenth century. The same may be said of the development of C. as a fine art, since the methods employed in the preparation of food for even the famous feasts of ancient and mediæval days were few and more or less crude, depending for success on the hearty appetites and unrefined palates of the people, while the lower classes cooked their food in the most primitive fashion. Early and mediæval Eng. feasts seem to have been distinguished by the immense quantities consumed, both of food and drink, rather than by the quality of the dishes served, while such recipes as have reached us are remarkable for the number and apparent incongruity of the ingredients employed. The art of C. may be said to have begun in Italy at the time of the Renaissance, and from there spread to France, which soon became its headquarters. The Italian cultured simplicity of C. seems to have been introduced into France by Catherine de Medici, and was developed by famous chefs whose names are immortalised in the titles of their inventions, under the patronage of Louis XIV. and Louis XV. Fr. C. still remains the ideal of high-class culinary operations.

Broiling, probably the earliest known process of cooking meat, consists of exposure of the surface to direct heat, so that the outside of the meat is well browned and the inside rendered tender and juicy. The primitive method of broiling meat

was by burying it in hot ashes, and the process is now performed over a clear fire on a gridiron or similar appliance. The bars of the gridiron should be rubbed with fat to prevent their marking the surface, and should be heated before the meat is placed upon them, as otherwise the main object of the cooking, viz. the rapid hardening of the outer albumen, is hindered. When the outer surface is browned, the cooking should be completed at a slightly greater distance from the fire. Broiling is specially applicable to small portions of meat, such as chops and steaks, which can be cooked more thoroughly, quickly, and simply in this than in any other way, and which attain by it a very delicate flavour. The meat should be turned during broiling by a pair of tongs, as a fork would cause the juices to escape. Grilling, which is another name for broiling, is not so well done before a fire as over it, as one side of the meat is in that case exposed to a current of cold air. The average time required for broiling is five minutes for a steak 1 in. thick, ten minutes for a steak, 1½ in. thick, and twenty minutes for a steak 2 in. thick. Small birds, such as quails, may be excellently broiled in about ten minutes, but white meat as a rule requires longer cooking than red.

Roasting is really the application of the principles of broiling to larger joints of meat, for which it is an economical process and one producing excellent results. As in broiling, exposure to the greatest heat should come at the beginning of the cooking, so that the meat juices are sealed up, and the joint, when cut, exudes a rich reddish gravy. The interior of the joint should then be allowed to cook in a rather gentler heat, by means of which the fibres are loosened, the connective tissue is changed into gelatin, the fibrin and albumen are oxidised, and the fat cells broken. The fat and tissues on the surface of the meat become caramelised and browned, and acquire a distinctive odour and flavour. The joint should be frequently basted with melted fat in order to prevent evaporation of the watery portion of the meat juice. Meat roasted before an open fire is much more wholesome than when baked in an oven, as the volatile empyreumatic oils produced on the surface are allowed to escape. Roasting is, however, possible only before an open range. The time required for roasting is from fifteen to twenty minutes for each pound of meat, white meat taking longer than red.

Baking.—Baked meat, owing to the reabsorption of the volatile products, which cannot escape in the

closed oven, is neither so digestible nor so delicate in flavour as roasted meat. This disadvantage may to a certain extent be overcome by the use of a brick or an earthenware oven, the porous walls of which absorb much of the vapour which is given off. Unfortunately, however, not only has the general use of closed kitchen ranges made baking the usual substitute for roasting, but the ovens are usually of iron, while frequently things are made worse by the reversal of the scientific method of cooking by exposing the joint to a higher temperature before the fire at the end of the process in order to brown it. Baking is also applied to other kinds of food besides meat. Thus pies, containing either meat or fruit, are usually baked, and a meat pie possesses many advantages over plain baked meat, since the surface is protected from charring by the crust, and the meat practically stewed in its own juices. It is often difficult to cook sufficiently the contents of a pie without burning the covering paste, but this trouble may be overcome either by partly cooking the meat or fruit previous to putting on the crust, or by protecting the latter during cooking by means of a sheet of thin paper. All forms of pastry, such as pasties and open tarts, are baked, and require a hot oven, as do also cakes. The latter should be placed at the top of the oven to begin with, but after the material has 'risen' sufficiently, removal to a cooler lower shelf is usually advisable to ensure thorough cooking of the interior. This has been attained when a clean knife, thrust into the cake, is clear on withdrawal. Especial care should be taken to close the oven door gently during the early stages of cake baking, or the risen dough may collapse. The baking of bread is governed by the same principles. All starchy foods are rendered more digestible by the application of dry heat, which converts the insoluble starch into soluble dextrin and sugar.

Stewing is the slow cooking of food in a closed vessel, and is the method adopted in most made dishes, as various other ingredients may be added to the meat and cooked together with it. Since none of the constituents of the materials used can escape, stewing is a most economical method of cooking, and is rendered doubly so by the fact that coarse and tough meat may be rendered palatable, tender, and digestible by its means. Lean meat is the best for stewing, and should be cut into convenient pieces and slightly browned by frying in fat previous to being placed in the stewpan. It should then be covered with water or

stock, and set to simmer for four or five hours, particular care being taken to prevent boiling, so that the albumen does not harden, and the meat cooks in its own gradually extracted juices. Vegetables, flavourings, and thickening matter may be added as desired. Stewing is best performed in a double vessel, which ensures a constant and gentle heat. The principle of stewing is also employed in the making of broth, and of soup or beef tea. Meat and bones for the making of soup should be placed in cold water and gradually raised to the boiling point, so that the escape of meat juices into the liquid is not hindered by hardening of the albumen. Since, however, it is not desired to eat the solid constituents, soup is also boiled in order to extract the gelatinous matter from the bones, etc.

more rapid method of cooking than stewing, the average time allowed being fifteen minutes for each pound of meat.

Boiling, or cooking by immersion in boiling water, is one of the most usual and simple methods of the preparation of food. Meat to be boiled should be plunged into a vessel containing sufficient boiling water to cover it, and kept at a very high temperature for about five minutes, in order to provide for the protective covering of albumen. It should then continue to cook at a lower temperature, so that hardening of the interior albumen is prevented. Many kinds of fish are best cooked by boiling, and also have a much better flavour if allowed to simmer gently after the first few minutes than if boiled hard throughout. Salted, smoked, and



A PANEL FROM THE BAYEUX TAPESTRY
(Illustrating the preparation of meat for a feast)

It is this gelatin which causes soup to form a jelly when cold, and, contrary to belief, it has no great nutritive value, soup being rather a stimulant than a food. Stewing is also the best method of cooking fruit.

Braising is a method intermediate between stewing and baking, the meat being cooked in a closed vessel known as a braising-pan, the lid of which forms a receptacle for hot coals. The meat is thus stewed in a moist heat, while it is subjected above to a partial baking, so that the upper surfaces are browned. Braising has many of the advantages of stewing, being, like it, economical and applicable to inferior pieces of meat. Salt should not be added till the meat is partly cooked. The cover is often removed from a braising-pan about half an hour before the contents are served, and the gravy reduced in bulk but increased in strength by evaporation, so that it acts as a sauce. This is a much

dried meat and fish should be soaked for some hours in cold water before boiling. The usual method of cooking eggs by boiling for three and a half minutes is far from ideal, as it allows the albuminous white to become over-cooked while leaving the yolk under-done. A much better plan is to place the eggs in boiling water (half a pint to each egg) and leave them in the gradually cooling water for about twenty minutes. Puddings which contain starchy and fatty elements should be kept in rapidly boiling water to ensure the bursting of the starch granules. All puddings are spoilt, becoming sodden and heavy, if allowed to go off the boil at all. Vegetables, which should be well washed before cooking, are boiled in plenty of water, which should be kept at the boiling point throughout. An exception is made in the case of old potatoes, which should be placed in cold water and gradually brought to the boil. The water in

Various kinds of utensils for special forms of C. are and have been in vogue, but the principles of most of them are merely variations of some of the above. Among them may be mentioned chafing dishes, being small metal pans arranged in a frame over an alcohol flame, and chiefly used for making light dishes or keeping milk or soup warm; the numerous kinds of double saucepans, especially valuable for milk foods, and the boilerette or steam-cooker, an excellent and economical medium for the gradual cooking of many kinds of meat, etc. The paper-bag C., introduced by Soyer, which had a great vogue in 1911, did not establish itself in general

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closely resembling the Samoan. The is. were discovered by Captain Cook in 1777; annexed by Great Britain in 1888, and by New Zealand in 1901. Pop. 10,000.

Cook, Mount, in the centre of the S. Alps in the S. Island of New Zealand, is the highest mountain peak in Australasia, its altitude being 12,349 ft. It is covered with perpetual snow, and rises in the shape of a pyramid above the other neighbouring peaks. The Rev. W. S. Green nearly reached its summit in 1882, Frye ascended it in 1893, and Turner in 1906. See G. E. Mannerling, *With Axe and Rope in the New Zealand Alps*.

Cookstown, a market tn. in co. Tyrone, Ireland, 35 m. from Belfast. It has linen factories, bleach-fields, and chemical works, and a considerable trade is done in agricultural produce. Pop. 3635.

Cook Strait, a strait between N. and S. Island, in New Zealand. It was discovered by Captain Cook in 1770.

Cooktown, a coast tn. in Queensland, Australia, situated at the mouth Endeavour R., 1050 m. from Brisbane. Has newspaper, two banks, fisheries, and gold and tin are worked in the district and the consist of coffee and rice. Pop.

brith, Ina Donna (1847-1928), an poet, b. Illinois. Her early in her life migrated to a, where she spent most of her r twenty years she was at the Oakland (California) library, and subsequently at Mercantile Library, so. Much of her poetry by her experiences of life eig districts of California, she work of Bret Harte, she was associated in in wk on the *Overland* for h, has been called 'The Californ West,' and the esteem her by of 'Poet Laureate of in 1890h was conferred on Perfect Danor and Legislature which. *The Singer's* publications: *A The m Cooley, Golden Gate* (1884); heat, architect, *Sea* (1895); partial is early reil 140-84), an Irish many of ful in the was apprenticed ing, being he Royal 769, he was suc- Salt should work he nition for build- meat is pat many o in 1779. He about half an the prison buildings in tents are serv 1773), and Newgate strength by bcs (Dublin), pile of the acts as a sa, nced in

1776 but unfinished at the time of his death in 1784.

Cooley, Thomas McIntyre (1824-98), an American jurist, b. in Attica, New York, and in 1846 was called to the Bar. In 1859 he became professor of law at Michigan University, and in 1861 he was made professor of constitutional history, and lecturer on constitutional law. He was a justice at the supreme court for twenty-one years, 1864-85, and was Chief Justice of same 1868-69. He wrote some important books on law, amongst them being *Treatise on Law of Taxation* in 1876, and *History of Governments* in 1885.

Coolgardie, one of a group of mining towns in W. Australia. It was an extremely busy mining centre, but the output of gold has greatly declined and the pop. fallen, according to the W.A. directory for 1929, to 900.

Coolidge (John), Calvin, thirtieth President of the U.S.A., was b. at Plymouth, Vermont, July 4, 1872, of old farming stock; son of John Calvin Coolidge and his wife Victoria Josephine (Moor) C., who d. on her thirty-ninth birthday, when J. C. C. junior was a red-haired boy of twelve. J. C. C. senior combined farming with keeping of the post office and general store: he was also Constable, Deputy-Sheriff, and Justice of the Peace, and he served in both Houses of Vermont Legislature. J. C. C. junior attended school first locally; then twelve miles off, at Black River Acad., Ludlow; then at St. Johnsbury; and finally, 1891-95, at Amherst College, where he dropped the 'John' and became known as Calvin C., and took the A.B. degree. Though able-bodied, he had nothing to do with athletic sports. From 1895 till 1897 he acquired law in the office of Hammond and Field of Northampton, Mass. He was admitted to the Bar, June 29, 1897. In 1899 he was elected to the City Council of Northampton, and was City Solicitor 1900-1. In 1903 he was Clerk of the Courts for Hampshire. On Oct. 4, 1905, he married Grace Anna Goodhue of Vermont, a teacher of the deaf. He was a member of the Massachusetts House of Representatives 1907-8, Mayor of Northampton 1910-11; member of Massachusetts Senate 1912-15 (President thereof 1914-15); Lieut.-Governor of Massachusetts 1916-17-18; Governor of Massachusetts (two terms) 1919-20. In this capacity he dealt firmly with the Boston police strikers of Sept. 1919. On June 12, 1920, he received the Republican nomination for Vice-Presidency of the U.S.A., and he assumed office

on March 4, 1921. On the death of President Harding, he was sworn in as President (Aug. 2, 1923), by his father (a notary *inter alia*), at the old home in Plymouth Village. He was re-elected for the term beginning March 4, 1925, and ending March 3, 1929. In Jan. 1928 he visited Havana, Cuba, and delivered an address at the Pan-American Conference. As President, C. inherited two scandals from his predecessor—the maladministration of a bureau for war veterans and an attempt to hand over public oil lands to private companies. C. allowed these things to go to the courts and the guilty ones to be punished. His idea of the duty of the Chief Executive was to save public money and do as little as possible to interfere with the business activities of the country. During his term a considerable portion of the national debt was paid off, the income taxes were reduced, and the country enjoyed unexampled prosperity. There were those who strongly favoured his 'standing' again, but he put a stop to all this by his sudden and cryptic announcement that he did not 'choose to run again.' Canny politicians thought this was mere political strategy, but C. soon convinced them that he meant what he said. He became known as 'Silent Cal,' mainly, perhaps, because he was not very communicative with White House callers. Since his retirement from the presidency, he has returned to Northampton and busied himself with writing a sort of autobiography and, latterly, a daily article which is syndicated to many papers in the U.S.

Coolidge Tube, an improved form of X-ray bulb, invented by the American physicist, W. D. Coolidge. It is now in general use.

Coolies (from Tamil *kuli*, hire, or from *Kuli*, the name of an aboriginal tribe of India), the name applied to the unskilled labourers of India and E. Asia, and especially to labourers of this class who have emigrated to other countries, usually under contract. Much difficulty was found in America after the abolition of slavery in finding labourers for the plantations. The white man was physically unable to undertake the duty, and the emancipated black was unwilling to do so. In these circumstances it was suggested that the overstocked Asiatic countries might supply the need, and agents were sent to India and China to negotiate for the importation of labourers. This traffic started after 1834, and was officially recognised by the British Gov., under whose jurisdiction it mostly fell, ten years later. There were, however, an enormous number

of abuses in the system, and those who knew it well stigmatised it as slavery. Many of the C. were attracted by elaborate promises, and some were kidnapped. They were taken over closely packed in ships and under conditions vividly recalling the slave ships. When arrived, they were practically sold by auction. The only points in which they differed from slaves were in having a regular wage paid to them and in being engaged for only seven years. The cruel oppression which characterised the whole C. system soon brought a series of reforms. In 1854 the British Governor at Hong-Kong forbade British subjects and British vessels to engage or be engaged in the exportation of Chinese C., and his action was confirmed in the following year by the Chinese Passengers Act, which made most stringent regulations for the trade, particularly with regard to the actual sea voyage. After this the business of importing C. into S. America and the W. Indies was transferred to Portuguese traders, and was carried on from Macao. From this port the old methods were resumed, and became, if possible, still more of a slave trade. The extension of the trade to Canton led to a fresh outburst of indignation, and further legislation was carried out, this time by the Portuguese authorities. These were practically inoperative, however, and things continued with periods of reform and deterioration until 1866. In that year a conference was held by representatives of the Eng., Fr., and Chinese Govs. China insisted that the contract should include the payment of the C.'s return fare at the expiration of five years, and this put an immediate stop to the trade with the W. Indies, where permanent labourers were required. From this period the C. for British colonies were drawn largely from India. After 1904 a large number of C. were imported from China by the Transvaal authorities for work on the Rand, much against the wish of the Boers. This led to many difficulties and complications, largely on account of the 'compound' housing plan being made use of. The emigration of C. from India is regulated by the Indian Emigration Act of 1883, which allows emigration only to certain colonies where good treatment is assured. These are British Guiana, Natal, Fiji, Jamaica, and most of the W. Indian Islands; the Fr. colonies of Guadeloupe and Martinique; Dutch Guiana; and the Danish colony of Saint Croix. C. are shipped from Calcutta, Madras, and Bombay, under the most carefully

regulated conditions. See E. Jenkins's *The Coolie: his Rights and Wrongs*, 1871, and J. L. A. Hope's *In Quest of Coolies*, 1872. See CHINESE LABOUR QUESTION.

Coomassi, see KUMASI.

Coombe, William (1741-1823), an author of several works noted for their humour and satire. The *Diaboliad* was an imitation of Le Sage, and although inferior to the work of that author, was a great success. *The Dance of Death* and *The Dance of Life* were two poems published in 1790. *The Tour of Dr. Syntax in Search of the Picturesque*, a poem illustrated by Rowlandson, was pub. in the *Poetical Magazine*, 1813; and his last poem, *The History of Johnny Quæ Genus*, appeared in the same year.

Cooper, Abraham (1787-1868), an Eng. painter whose work, consisting of about 400 pictures, is mostly battle scenes. The most well known are those of 'Waterloo,' 'Bosworth Field,' and 'Marston Moor.'

Cooper, Antony Ashley, see SHAFTESBURY, EARL OF.

Cooper, Sir Astley Paston (1768-1841), an Eng. surgeon who devoted himself particularly to anatomy, and attended John Hunter's lectures. His publications are important, especially the *Anatomy and Surgical Treatment of Hernia*, 1804-7; *Dislocations and Fractures*, 1822.

Cooper, Charles Henry (1806-66), an Eng. antiquary and author. He became a solicitor in 1840 and held the position of town clerk of Cambridge, 1849-66. His chief works are: *Guide to Cambridge*, 1831; *Annals of Cambridge*, 1842-53; *Athenæ Cantabrigienses*, 1856-61; *Memorials of Cambridge*, 1858-66; and *Memoir of Margaret, Countess of Richmond*, which was not published until 1874.

Cooper, Gladys (Lady Pearson), Eng. actress, b. Dec. 18, 1889, at Lewisham; daughter of Chas. Wm. Fredk. C. Married, first, H. J. Buckmaster (marr. diss.); second, 1928, Sir Neville Arthur Pearson, Bart. First appeared on stage, Christmas 1905—touring with Murray King and Clarke's company as Bluebell in *Bluebell in Fairyland*. First London appearance, Vandeville, Oct. 6, 1906, as Lady Swan in *The Belle of Mayfair*. Has appeared in the following (*inter alia*): 1908: *Havana*. 1909: *Our Miss Gibbs*; *The Dollar Princess*. 1911: *Half-a-Crown*; *The Importance of Being Earnest* (Cecily Cardew); *Man and Superman* (Violet). 1912: *Milestones* (Muriel Pym); *The Odd Man Out*; *Everywoman*, Drury Lane (Beauty). 1913: *Diplomacy* (Dora); *Broadway Jones*; *The Pursuit of Pamela*. 1914: *Peggy and her Hus-*

band; *My Lady's Dress* (seven characters); *The Silver King*, all-star (Susy); *The Bridal Suite*; also concerts on the Fr. front. 1915: *Half an Hour*; *The Admirable Crichton* (Lady Agatha). 1917: *Trelawney of the Wells* (Clara); *The Man from Blankley's*, all-star (Marjory). 1918: *The Naughty Wife*. 1922: *The Second Mrs. Tanqueray* (Paula). 1923: *Mayda*; *Peter Pan* (Peter). 1924: *The Ware Case*. 1925: *Iris*; *The Last of Mrs. Cheyney*. 1927: *The Wandering Jew*.

Cooper, James Fenimore (1789-1851), an American novelist whose works were mostly of the adventure type for boys. He came of a Quaker family, and was b. at Burlington in New Jersey. He served for some years in the navy, but he gave that up in 1811, and devoted all his attention to literature. His first book which found its mark with the public was *The Spy* in 1821; this he followed with *The Pioneers* in 1823. He also wrote *The Pilot* in 1823, and it was this work which earned for him undying fame, although *The Last of the Mohicans*, brought out in 1826, is generally considered to be his masterpiece. At this time C. went to live in France, where he wrote for the *National* on American questions. Whilst he was in Paris he wrote *The Prairie* in 1827 and *The Red Rover* in 1828. In the year 1833 C. went back to America and wrote in rapid succession *The Monikins*, *Heathen's Wall*, *The Pathfinder*, *Mercedes of Castile*, and *The Deerslayer*. In 1839 he wrote *The History of the Navy of the United States*. The last years of C.'s life were spent in heated warfare with his critics, and lawsuits followed, from which he emerged victorious.

Cooper, Peter (1791-1883), an American educationist, manufacturer, and philanthropist, b. in New York. He worked with his father in various trades, and in 1828 established iron works in Baltimore, and in 1830 constructed the first locomotive in America. He then established a factory in New York, and a furnace in Pennsylvania, and did much work in the laying of the first Atlantic cable. As a philanthropist he founded the Cooper Union (*q.v.*), an institute in New York to provide for the education of the poorer people. In 1876 he was a candidate for the Presidency.

Cooper, Samuel (1609-72), an Eng. miniature painter, b. in London, and studied under his uncle, John Hoskins. He painted the portraits of Oliver Cromwell, Charles II., and of most of the celebrated men of the time.

Cooper, Thomas (1759-1840), an American educationist and political

philosopher, *b.* in London, England; emigrated to Penna. in 1793, after being educated at Oxford. He practised law, and won the esteem of Thomas Jefferson, who secured him a college appointment which, however, he was obliged to resign. He became professor at, and eventually, in 1820, president of, S. Carolina University, which post also he was obliged to resign owing to opposition to his liberal religious views. He pub. many philosophical and economic writings.

Cooper, Thomas (1805-92), a Chartist and poet, *b.* at Leicester. In 1840 he headed the Chartists in Leicester, edited the *Midland Counties Illuminator*, and lectured in the pottery districts during the riots of 1842, for which reason he was arrested on a charge of conspiracy and sedition, and imprisoned in Stafford gaol for two years. While in prison he wrote *The Purgatory of Suicides*, his greatest poem, and *Wise Saws and Modern Instances*, both published in 1845. Next year he published *Baron's Yule Feast*, and a series of papers entitled *Condition of the People of England. The Triumphs of Perseverance* appeared in 1847, and his two novels, *Alderman Ralph* and *The Family Feud*, in 1853 and 1854 respectively. After his release from prison he lectured on politics in London, and on Christianity, and wrote *The Paradise of Martyrs*, *Thoughts at Fourscore and Earlier*, and an account of his own life in 1872.

Cooper, Thomas Sidney (1803-1902), an Eng. painter, *b.* at Canterbury. He early began to earn his living as a coach-painter and as a scene painter, and afterwards became a drawing master. Some of his works are exhibited in the Tate Gallery, the National Gallery, and the South Kensington Museum.

Cooperage: (1) the term applied to the system carried on by Dutch and other foreign vessels called 'copers' about the middle of the nineteenth century, of illicitly selling drink and tobacco to the fishermen of the North Sea. The six fishing powers at the international conference at The Hague, 1857, prohibited the sale of spirits in the North Sea, and in 1888 the North Sea Fisheries Bill was passed by the British Gov., prohibiting the sale of spirits to fishermen. (2) an ancient craft, being known to and practised by the Romans. It is the name given to the art of making barrels and vessels of a similar shape, which are constructed by means of curved staves fastened together by means of hoops, each stave being widest in the centre and tapering towards each end. There are several branches of the industry, and for each branch special coopers are

employed. The 'wet' cooper makes casks and barrels for holding liquids, and he is the most skilled of all the coopers; the 'dry' cooper makes vessels for holding dry goods; and the 'white' cooper makes such utensils as churns, pails, and washing-tubs, where the sides are usually straight and not curved as in the cases of casks and barrels. Machinery is now largely employed for making barrels.

Co-operation. The term, which means literally 'working together' (Lat. *co-*, *cum*, with, and *opus*, work), is used first in a general way for any combination in production or sharing in work; it is thus, in economics, almost a synonym for 'division of labour,' but this, the narrower sense, is mainly secondary. When we speak of 'C.' or of the 'co-operative movement,' we mean the system of a combination of producers and consumers for selling and buying in common, and reaping the profits from so doing, as opposed to the ordinary competitive system. The co-operative ideal is succinctly laid down in the motto 'each for all, and all for each,' and claims to take a middle ground between the state regulation of Socialism on the one hand and the competitive, individualistic system of society as it exists on the other. Apart from its ideals and its force as a solution of social and economic difficulties, the system and movement may be best understood from a brief sketch of its history and of its present position. In 1799 Robert Owen established his co-operative communistic cotton-mills in New Lanark, Scotland, and till 1823 their success was undoubted. Owen's theory of establishing self-supporting communities, based on an ideal co-operative system, was tried practically in several places, but each in turn collapsed, and New Lanark itself broke down, mainly through religious and other dissensions. In 1844-45 was opened in Rochdale, Lancashire, the first of the modern co-operative stores, the Rochdale Equitable Pioneers, in a small shop started by a handful of poor weavers; the society still exists with a membership of over 15,000, and a turnover of nearly half a million. It is this type of C., the distributing or consumers' society which has progressed most, at any rate in Great Britain. The main lines on which such a co-operative society is run are as follows: any one may become a member by taking up one or more £1 shares, payable out of the dividend, with a nominal 1s. entrance payment. No member may hold more than £200 in shares. All goods

are sold at the current retail prices, having been bought at wholesale prices or produced from the co-operative factories. The profit, after paying 4 to 5 per cent. on capital and the expenses of the stores, is divided quarterly or half-yearly at so much per pound of money spent in purchases, which is paid on the purchasers' tokens or vouchers. This is the co-operative rebate, or, as it is familiarly called in the N. of England, the 'divi.' The Eng. societies confine the profits to the consumers. The Scottish reserve a proportion for the employees. Many societies, especially some of the large ones of the N. of England, spend a proportion of their profit in educational and other institutions. Linked with these are many co-operative producing societies, some independent, others forming part of the distributive societies. A federation of co-operative societies was founded in 1863, and called the English Wholesale Society. It is a federation of co-operative societies, none other being allowed to become shareholders or purchasers. Each society takes up one £5 share for every five members. The Society produces practically all the staple commodities. It owns steamships, tea plantations, and has a wide system of international purchasing. Its insurance branch is an approved society under the Insurance Act. The central propagandist body is the Co-operative Union, founded in 1869, which holds an annual congress and issues yearly the fullest statistics (address: Holyoake House, Manchester). The Scottish Wholesale Society was started in 1869 on similar lines to the Eng. Society, but it admits its employees to collective membership on certain terms. C. in other countries has taken various forms, and on the European continent is very largely agricultural, and based on the rendering of credit easily available, by means of credit banks, etc. In fact, while in British C., mainly distributive, credit, that is, the spending of money before it is earned, might be said to be the enemy, to the continental productive co-operator, credit, that is, the obtaining working capital on easy terms, is the supporter and the object. Thus in Germany there are over 17,000 credit, as against 2200 distributive, societies. In the U.S.A. the co-operative movement is chiefly centred in building societies, which in Great Britain are considered outside the co-operative movement. There is an International Co-operative Alliance for the promotion of C. throughout the world. It is a federation of co-operative organisations in Great

Britain, together with nearly all the Continental nations, Canada, and the U.S.A. It holds international congresses in various cities. As has been said, credit banks and credit societies are a principal feature of continental co-operation, especially in Germany. Of these there are two main types, the Raiffeisen and the Schultze-Delitzsch banks. The first type was started in Rhenish Prussia by F. W. Raiffeisen in 1849. This was a 'loan bank' at Flammersfeld, which was a combination of peasants borrowing money on their joint responsibility, and lending it to individual members at an increased rate of interest. No profit is made by the bank in interest or dividend, and no mortgages or other security taken except personal; the loans are made for specific purposes, and are repayable at short periods. The Schultze-Delitzsch banks were started in 1850 by F. H. Schultze of Delitzsch, Prussia, and were and are for townspeople, artisans, and craftsmen. The banks, formed by shares taken by members, receive deposits and savings, and borrow money chiefly, and lend out at good rates of interest to members, taking securities of regular form, such as mortgages, etc. They are not confined to localities as the Raiffeisen banks, and tend very much to ordinary banking business, especially since the Co-operative Bank was amalgamated with the great Dresdner Bank in 1903. As a political and social and economic movement, C. has not played the part hoped for by its supporters. It has tended, especially in Great Britain, to be a consumers' movement, but its direct benefits to its individual members have been great. In the past twenty years, consumers' C. in Great Britain has made consistently good progress, but that of producers has been a comparative failure. The retail co-operative societies have undertaken production to a limited extent, both directly, and indirectly through the wholesale buying agencies set up by them. This production, however, takes the form of assembling materials of a somewhat prohibitive cost price and actually produced outside the co-operative society itself. Experimentation on these lines in mining and agriculture or other basic industries has met with little or no success. Efforts to co-ordinate the interests of consumer and producer by so developing C. as to make one kind of society serve the interests of both have up to now been unsuccessful. C. of consumers has been particularly successful in the form of co-operative trading societies. The characteristic feature of these so-

cieties is that the interest on the share capital is limited to a fixed rate, and the control of members is not enhanced in proportion to their share capital. After payment of interest on capital, trading proceeds go back to the purchaser in proportion to the value of what he has purchased. Alternatively, members may elect not to take their interest and dividends, but to allow them to accumulate, and thus yield more working capital for the society. The prosperity of these trading societies is shown by the fact that if they were allowed by their constitutions to withhold dividends on purchases, they could pay a 20 per cent. dividend on their capital over and above the usual fixed rate of interest. But notwithstanding this constitutional limitation, large reserves are accumulated, with the result that consumers' C. makes marked progress even against strong outside competition. In Great Britain there are over 1300 retail, and three wholesale societies, and also more than seventy productive associations controlled by consumers. Their sales aggregate over £200,000,000 annually, over half of which are effected from their wholesale societies at prices aggregating about half the above sum. But sales by the productive associations only reach a yearly total of about £3,500,000. The total membership of these 1300 societies is nearly six millions, an increase of 2 millions since 1920; and their aggregate total of capital (share, loan, and reserve) is approximately £175,000,000, an increase of over £100,000,000 in the past ten years. The total value of the productions of the consumers' societies of Great Britain is about £80,000,000. They include food and tobacco, farm and dairy produce (£56,000,000); clothing, textiles (£9,000,000); building, engineering (£5,000,000); other industries (£7,500,000). Taking into account the difference in the value of money as compared with pre-war years, it appears that the production of these societies has increased by nearly 100 per cent.; though the proportion of wholesale value created within the movement itself is very little over 14 per cent. (For agricultural co-operation see AGRICULTURAL CO-OPERATION. See also CO-PARTNERSHIP, LABOUR.)

Cooper's Creek, or Barcoo River, rises in Queensland, Australia, and flows S. for some distance, then takes a westerly turn and flows by means of a delta into Lake Eyre. In the dry season it usually dries up, but in the rainy season there is a series of detached pools and lagoons.

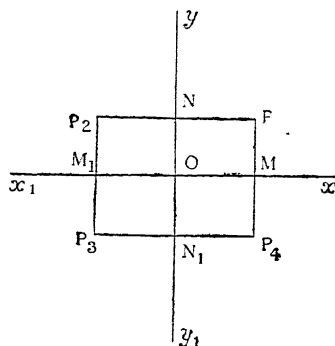
Cooper's Hill, a ridge on the borders of Surrey and Berkshire, England. Cooper's Hill College was established there in 1871 as the Royal Indian Engineering College, and in 1885 a school of forestry was attached. The whole establishment was, however, closed in 1906. C. H. is the scene of Sir John Denham's best-known poem published in 1642.

Cooperstown, a village in New York State, co. seat of Otsego co., made famous by Fenimore Cooper (see his *Correspondence*, edited by his grandson).

Co-ordinates of a point are the lengths of two adjacent sides of a parallelogram formed by drawing straight lines from the point parallel to two fixed intersecting straight lines called the axes. The use of C. forms a branch of mathematics called *Analytical Geometry*, which consists of the application of the principles of algebra to geometry. Arithmetic and algebra are concerned with counting, and to this end certain symbols are used which are looked on as representing certain quantities. The symbol '4,' for instance, represents the quantity obtained by the process '3+1.' We may think of a number in three different aspects: first, as the symbol, which is simply a mark on a piece of paper; second, as the concrete number, when we imagine such objects as three cows, three shillings, etc.; third, as the abstract number, when we look on the mathematical quality which is common to such different collections of objects as three cows, three horses, three shillings, etc. In arithmetic we perform operations with abstract quantities which are quite capable of a concrete interpretation; the use of the abstractions simply conduces to economy of time. Similarly, in algebra, where x and y represent certain numbers, it is quite allowable to suggest that they may mean x times and y times a given unit. Descartes extended this notion to geometry, suggesting that numbers may be represented by distances; if a unit of length is fixed on, it is obvious that any whole number can be represented by a line containing the unit the requisite number of times, while fractions may be obtained by dividing the unit into the number of parts indicated by the denominator, and taking as many of those parts as are shown by the numerator.

The first necessity of this form of algebraical geometry is to provide a means of indicating the position of a point. If we wished to indicate the position of a nail in a wall, we could do so by measuring its shortest or perpendicular distance from the floor,

and its perpendicular distance from one end of the wall. Armed with these two distances, it would always be possible to re-establish the position of the nail. Descartes, therefore, chose two straight lines intersecting at right angles, to which the position of all points must be referred. The straight lines are called axes; the distance of the point to the right of the vertical axis and its distance above the horizontal axis are called its *co-ordinates*, the former distance being called the *abscissa* and the latter the *ordinate* of the point. The settlement of the direction in which the distance is to be measured at once gives a meaning to negative numbers. The symbols '2,' '3,' are equivalent to the commands 'subtract two' and 'subtract three,' and are therefore not



capable of concrete demonstration in arithmetic unless there are given certain greater quantities from which 'two' and 'three' have to be subtracted. In geometry, however, a distance measured in the opposite direction to that settled as constituting the distance of the point from the axis is looked upon as negative. Thus a point three units to the left of the vertical axis has an abscissa of '3,' and a point three units below the horizontal axis has an ordinate of '3.' The point of intersection of the axes is called the origin, and is denoted by the letter O; the symbols x and y are used to represent the abscissa and ordinate respectively, the abscissa always being named first. Thus the C. of P are known if the distances MP and NP are known. Suppose $MP = a$ and $NP = b$, then the C. of P are (b, a) , those of P_2 are $(-b, a)$, those of P_3 $(-b, -a)$, those of P_4 $(b, -a)$; the C. of M are $(b, 0)$, of M_1 $(-b, 0)$, of N $(0, a)$, and of

$N_1(0, -a)$. The C. of the origin are $(0, 0)$.

When the C. of two points are known, the length of the straight line joining the points can be calculated. If the straight line is oblique with respect to the axes, it may be made the hypotenuse of a right-angled triangle with a horizontal side $= x_1 - x_2$, and a vertical side $= y_1 - y_2$. From the property of right-angled triangles, which states that the square on the hypotenuse is equal to the sum of the squares on the sides containing the right angle, we get the length of the hypotenuse equal to the square root of $(x_1 - x_2)^2 + (y_1 - y_2)^2$. The square on the hypotenuse may be an irrational quantity; that is to say, its square root cannot be expressed by multiplying the unit by a definite number or fraction. It is to be observed that such symbols as x^2, y^2 , etc., although they appear to represent areas, may actually represent length of lines.

As the distance between two points in a system of C. can be computed, so can the area of any figure bounded by straight lines. Such a figure can be cut up into right-angled triangles and trapeziums whose areas are readily found.

In analytical geometry rectangular axes are most commonly used, but oblique axes are also employed. There is yet another method by which the position of a point can be indicated by two measures. In the system of *polar C.* a fixed straight line called the initial line is taken, containing a fixed point called the pole. The position of any point can be defined by the measurement of its distance from the pole, and of the angle which the direction of the line joining it to the pole makes with the initial line. The first C. is called the *radius vector*, and the second the *vectorial angle*. Polar C. may be changed into Cartesian C. by making use of the trigonometrical ratios of the vectorial angle.

So far we have dealt with the positions of fixed points with reference to C. If a point is made to move under certain conditions, e.g. that its distance from a fixed point remains constant, it describes a path which is known as its *locus*. In the example given the locus is the circumference of a circle having the fixed point as its centre; again, the locus of a point moving at a constant distance from a fixed straight line is a straight line parallel to the fixed line. When a point moves, one or both of its C. will vary in a manner determined by the given conditions. Such C. are known as *current C.* If a point moves in such a manner that its abscissa is equal to its ordinate, its locus will be a straight line passing

through the origin and bisecting the angle between the axes. The relation between the C. is expressed by saying $x=y$, or $x-y=0$. Conversely we say that the algebraical equation $x-y=0$ is graphically expressed by the straight line bisecting the angle between the axes. Now take any equation of the general form $ax+by+c=0$, or, say, the particular instance $x+2y-2=0$. For any value of x that may be taken there is one value for y ; e.g. when $x=1$, $y=\frac{1}{2}$, and when $x=4$, y must equal -1 to satisfy the equation. If points are marked out with their abscissæ measured by x and their ordinates measured by the corresponding values of y , it will be found that they all lie upon the same straight line. Therefore $ax+by+c=0$ is said to be the general form of the equation of the straight line.

Equations showing relations between two quantities x and y which involve the second degree of those quantities give two values of y for each value of x , and if the points thus determined are joined, the line thus indicated is a curve. Therefore, equations of the general form $ax^2+bx+cy^2+dx+ey+f=0$ determine curves which are found to be similar to those obtained by cutting a cone by a plane in different directions. The types of these conic sections are the *parabola*, the *ellipse* (of which the circle is a particular instance), and the *hyperbola*, and the nature of the curve is determined by the nature of the co-efficients, a, b, c, d, e, f .

We have dealt so far with points on a plane, and the determination of their position with reference to axes in that plane. Any point in space may be determined by three C. Instead of axes of reference we now have planes of reference, and these are generally disposed at right angles, two and two. There are, therefore, three lines of intersection passing through a common point, the origin. In rectangular C. the distances are measured to the right of one plane above another, and in front of the third. Distances in the opposite direction to these represent negative quantities in each instance. Polar C. may also be used to denote the position of a point in space. These have special applications in astronomy, a simple instance being the determination of the position of a point on the surface of the earth. The point of origin is the centre of the earth, and the quantities required to fix the position of a point are its distance from the origin, the angle formed by this radius vector with the equatorial plane, and the angle formed by the radius vector with a given plane at right angles to the equatorial plane

and passing through the origin. The distance of the point from the origin is the radius of the earth, and is therefore the same in all cases; it is sufficient, therefore, to give the angular distance from the equatorial plane, or *latitude*, and the angular distance E. or W. of the plane of the meridian at Greenwich, or *longitude*.

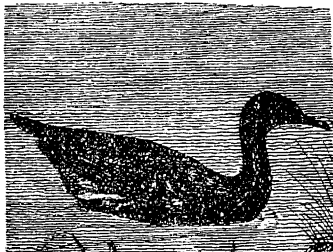
See Descartes, *Géométrie*, 1637; H. E. Cobb, *Elements of Applied Mathematics*, 1911; E. Duporcq *Premiers Principes de Géométrie Moderne*, 1924; D. B. Mair, *Fourfold Geometry*, 1926.

Coorg, a prov. on the E. slopes of the W. Ghats and to the S.W. of Mysore in India. It is traversed by spurs from the W. Ghats and watered by the R. Cauvery. Much of the surface is covered with forests, and in the valleys the people are engaged in agriculture, and coffee, rice, cardamoms, and cinchona are grown. The natives, a branch of the Dravidians, are sturdy intelligent people and speak a language akin to Kanarese. The capital is Merikara. Area 1582 sq. m. Pop. 163,840.

Coornhert, Dirch Volkertsen (1522-90), a Dutch author, b. at Amsterdam. He became town clerk of Haarlem in 1564, and secretary of state for the Netherlands in 1572, but was imprisoned and exiled by the Spaniards. Remembered for his translations into Dutch of Homer, Cicero, and Boccaccio, indeed he is sometimes regarded as the founder of Dutch literature.

Coorong, The, an arm of salt shallow water near the mouth of the R. Murray, S. Australia; it is about 100 m. long, and 2 m. broad, and is separated from Encounter Bay (36° S., 139° E.) by a narrow isthmus.

Coot, a slaty, black water-fowl, with a white bill joining a white patch on the forehead. It has four toes, and



COOT

not fully webbed. In coloration the sexes are alike, though the male is slightly the larger. They are widely

distributed on inland waters in the British Isles. Their nest is built on water-plants and is made of dry rushes. The eggs are stone colour with brown specks, and are about two inches long.

Cootamundra, a tn. in Harden co., New South Wales. Wheat of an excellent quality is grown in the neighbourhood. Pop. 3531.

Coote, Sir Eyre (1726-83), a soldier b. in the co. of Limerick. He entered the army at an early age, and went to India in 1754. While there he urged Clive to fight the battle of Plassey, defeated the Fr. at Wandiwash, and by his capture of Pondicherry in 1761, completely overthrew the Fr. in India. On his return to England he was knighted. In 1779 he returned to India as commander-in-chief and defeated Hyder Ali at Porto Novo in 1781, and so saved Madras for the second time.

Copaiba, or **Copaiva**, an oleo-resin; its two chief constituents being resin and volatile oil. This substance is a secretion of trees which are natives of the warm parts of America. Each tree yields a large quantity of the oleo-resin, so much sometimes that it bursts the trunk and causes a resounding noise during the process. It is characterised by an aromatic odour, which is not at all unpleasant, and by a bitter taste. Its chief property is its power of acting on the mucous membrane and is used very largely in cases of chronic catarrh. It has also diuretic and laxative properties. C. is often adulterated, generally with castor-oil, sometimes with other oils.

Copais, or **Topolais**, a marshy lake of Boeotia in Greece. This former marsh, which was enclosed by mountains on all sides, has been drained by a series of tunnels cut in the mountains, thus conveying the waters of the river Kephisso into two adjoining lakes and into the channel of Atalante.

Copal, a resinous substance obtained from trees and used in making varnishes. It is usually of a light yellowish colour, generally transparent, is found in pieces which are round in shape, and is brittle. It is partially soluble in oil of turpentine, but to be entirely so it has first to be heated, which process it undergoes before being dissolved in this oil or linseed oil for producing varnishes and lacquers. It is found in the E. Indies, S. America, and Africa. Copal varnish is made from various kinds of C., heated and mixed with oil of turpentine or linseed oil, both of which dissolve it.

Copalchi Bark, obtained from a shrub of Mexico and Central America, the *Croton pseudo-China* or

'niveus' (Euphorbiaceæ), allied to the 'Cinchona.' It is used as a febrifuge, as a substitute for quinine.

Copan, a vil. in the state of Honduras on the Copan R. in Central America. Its ruins, consisting of a temple, truncated pyramids, monoliths with carving and hieroglyphics, testify of its former magnificence. Even at the time of its conquest it was a large city, but it is now only a village situated in a very mountainous district.

Co-parceners (co-partitioners): (1) At common law female co-owners claiming title by descent to an estate, of inheritance in land, or co-owners of either sex claiming title *through females*: less frequently (2) by custom tenants in gavelkind (see GAVELKIND). As to (1), if a man dies intestate, leaving females as his next heirs these take his freeholds of inheritance equally, for the rule of primogeniture does not, generally speaking, apply to females. If A dies leaving three daughters, B, C, and D, his heritable lands go to B, C, and D equally as Co-parceners; if B be dead leaving two sons E (the elder), F, and a daughter G, and if D be also dead leaving a daughter H, then E, H, and their aunt C will now be co-parceners. In all cases where several females take one inheritance by descent they are called parceners, or Cs. If there be a title or dignity descendable to heirs of the body, the lands belonging to it may descend to Cs., but the dignity falls into abeyance. The descent of the crown is an exception to this rule; for if there are several daughters, sisters, etc., and no male heir, the crown with all its rights descends to the eldest female. Co-parcenary, or the common ownership by Cs., may be severed by (i.) a partition suit in the chancery division, (ii.) by the whole estate becoming vested in the sole ownership of one of the Cs., (iii.) by one C. alienating her share to a third person. Partition can always be compelled by a co-parcener.

Co-partnership, Labour, is commonly defined as consisting chiefly in the practice of profit-sharing and ownership-sharing. 'Profit-sharing,' however, is not synonymous with co-partnership. The reality of L. C. will not necessarily be found wherever the practice of profit-sharing may prevail. The difference is clear from the objects of the Labour Co-partnership Association, which was founded in 1884 'to bring about an organisation of industry based on the principle of Labour Co-partnership, that is to say, a system in which all those engaged shall share in the profit, capital, and responsibility.' The first essen-

tial to the right application of co-partnership methods is a new orientation of ideas, but while the protagonists of Capital and Labour continue to live in an atmosphere of 'class-war,' and trade union leaders make no genuine attempt to secure co-operation between capital and labour, L. C. can never achieve any progress. In 1910 there were 121 firms with C. schemes, employing 57,000 participants; the present total is but little over 300, with 200,000 participants, and the tendency is for these figures to decrease. The chief industries with C. schemes include about sixty gas, water, and electricity supply firms, with over 40,000 participants; about forty metal, engineering, and shipbuilding, with 20,000; fifteen glass, chemical and soap firms, with 30,000; and a few financial firms, with 30,000 participants. But less than half of the total employees participate in the schemes. These statistics, however, take no account of the co-operative societies which have their own profit-sharing arrangements (see under Co-OPERATION). It is admitted by the advocates of L. C. that there is a marked defect in the ordinary treatment of co-partnership practice in that it confines discussion entirely to questions of internal relationships within a particular industrial unit; and that it is on that account that objections are often made that C. is incompatible with the mobility of capital and labour. It may be agreed that there need be no incompatibility, but there are certainly important problems of external relationships and co-ordination that must be included in any attempt to work out a full application of the principles of L. C. It is, however, of vital importance to retain the direction of industry by men chosen from the widest field by means of a process that is fully selective. Yet it is equally necessary to C. that each industrial unit should be steadily subjected to the test of profit making. Two things seem to be essential: each individual must be able to realise that he is working for himself and yet that his interest is in harmony with that of his fellow-worker in the same unit. For this, L. C. proposes that, in place of the simple wage interest, there shall be a much more direct and apparent connection between income and the results of the enterprise. (See Supplem. to *Manchester Guardian* on 'Industrial Relations,' Nov. 30, 1927.)

Cope (Latin *cappa*), a vestment worn by priests in the Latin Church at processions and vespers, but not at mass; in the Gk. Church by bishops

and archimandrites only; and in the Armenian Church by the celebrant at Mass. In the Church of England the C., forbidden in 1552, was by the twenty-fourth canon of 1603 directed to be worn by the celebrant at Holy Communion in Cathedrals and Collegiate Churches. It is now usually worn by the priest at coronations. It is in the form of a cloak with a hood, but without sleeves, reaching to the ground, and fastened at the neck with a clasp or morse, often embroidered.

Cope, Sir Arthur Stockdale, painter chiefly of portraits, but also of landscapes, was b. 1857; son of Chas. West Cope, R.A. Educated at Norwich and Wiesbaden. Studied art at Carey and R.A. schools. Since 1876 he has contributed in the Royal Academy, and has painted the portraits of King Edward VII., the last Ger. Emperor, the Archbishop of Canterbury, Lord Kitchener, the Duke of Cambridge, King George V., the Prince of Wales, the Lord Chief Justice, Lady Hickman, Viscount Knutsford, and many other celebrated people. His 'Some Sea Officers of the Great War' is in the National Portrait Gallery. Two honourable mentions at the Paris Salon, gold medal, and Prix Rosa Bonheur. He became R.A. in 1910; and was made K.C.V.O., 1927.

Cope, Charles West (1811-90), an Eng. artist. Many of the frescoes in the House of Lords, both water-glass and otherwise, are his handiwork. His other works consist of paintings and frescoes of an historic and romantic nature.

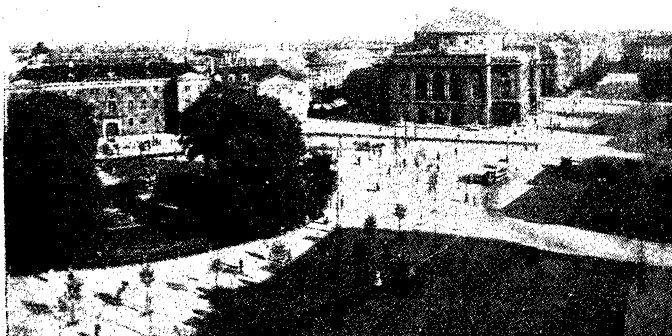
Cope, Edward Drinker (1840-97), an American naturalist, b. at Philadelphia. He was palæontologist to the United States Geological Survey; and professor of geology at Pennsylvania University. He wrote several works on palæontology and many important treatises on the theory of evolution, supporting the Lamarckian view. He also spent much time in studying the reptiles and amphibia of N. America, and on which he wrote several works.

Cope, Sir John (d. 1760), a British general. The date of his birth is uncertain, but he was apparently knighted before 1742, the year in which he was sent with an army to aid the Queen of Hungary. He is chiefly memorable for his defeat at Prestonpans (Sept. 21, 1745) by Prince Charles, the Young Pretender.

Copenhagen, cap. of Denmark, and a flourishing city and seaport, which contains one-fifth of the whole population of the country. Its name signifies Merchants' Haven (Dan. Kjøbenhavn, Ger. Kopen-

hagen). This city is situated in the Sound and covers part of two is. The greater part of Copenhagen is situated in the is. of Zealand and occupies the E., whilst the smaller and more modern part is situated on the is. of Amager, and occupies the N. The two is. are connected by the Langebro and Knippelsbro bridges. The portion of C. in the is. of Amager is called Christianshavn. By reason of its position, C. is a great stronghold. The old fortifications have been superseded by new ones embracing a system of canals which would flood the approaches to the city in time of danger. There are

(old square) has a poultry, egg and cheese market daily. Ostergade is the centre of the most fashionable shops, and Bredegade the main street of the court, nobility and legations. A portion of the old town of C. is cut off by artificial waterways and is called Slotsholm or Castle Is. Here are many important buildings to be seen, such as Christiansborg Palace, the royal library (containing 850,000 vols. and 30,000 MSS.), and the Thorwaldsen Museum—here, in an open court, lies the tomb of the famous sculptor, and here are some of the finest examples of his statuary to be seen. The cathedral church,



COPENHAGEN—KONGENS NYTORV

[Danish Tourist Bureau

many outlying suburbs of C. in the is. of Zealand, principally Osterbro, Nørrebro, Vesterbro, and Frederiksberg. The outlying suburb in the is. of Amager is Amagerbro. The principal public square of C. is Kongens Nytorv, commanding a central position and facing the entrances to twelve streets. There is a colossal statue of Christian V. in the centre of the square. Two important buildings, the Palace of Charlottenborg (outside which stands the statue of Frederick VII.) and the Royal Theatre (viz. the national theatre), face the square. Two statues of the great national writers, Holberg and Ehlenschläger, stand in front of the theatre, whilst inside among other sculptures is the relief figure of 'Ophelia' sculptured by Madame Sarah Bernhardt. The Gammel-torv

the Vor Frue Kirke (Church of Our Lady), lies in the heart of C., W. of Slotsholm, and is adorned with works of sculpture by Thorwaldsen, including the celebrated 'Twelve Apostles.' Not far from the church lies the university, founded in 1479. It is a state institution, frequented by 3923 students, of whom 670 are women, and possessing a valuable library with free admission to the reading-room for everybody. It contains 700,000 volumes. Other useful and important institutions and buildings are the Veterinary and Agricultural College, Serum Institute, Seed-controlling Institute, Institute of Technology, Business College, Polytechnic for training engineers, Surgeons Hall, open only to medical students, State Training School for Teachers, Finsen Medical Light

Institute, Insuline Laboratory, Botanical Garden, National Museum, Ny Carlsberg Glyptothek or gallery of sculpture, several art galleries, the Exchange, National Bank, the Amalienborg Palace, the Rosenborg Palace, Frederiksberg Palace and other palaces. The Zoological Gardens give free admission to 100,000 school children and students a year. C. is the one naval station of Denmark. The free port has become the centre of the transit trade of the Baltic and connected by steamship lines with every port on the globe. The United Steamship Co. has a fleet of more than one hundred steam and motor ships. Ten millions of passengers entered and left C. by train in the year 1923-4. It is the centre of the Air Traffic of N. Europe. The sending of wireless messages is worked by the state. The 900 municipal tram cars and buses carry 130 million passengers a year, 15,300 ships entered the harbour in 1926. Boulevards and gardens now occupy the landward site of the fortifications, but the citadel, built in 1661, is still used for military purposes. An old wind-mill near it has a peaceful air. Shipbuilding is carried on, and there are extensive porcelain works. The history of C. dates back to about the middle of the twelfth century, when Bishop Axel built a castle as a defence against the pirates. It was only a small fishing village then; in 1254 it obtained the privileges of a town and in 1443 it was made the capital of Denmark. Pop. 731,496.

Copenhagen Fields, a N. London district which in old days was often the scene of huge public demonstrations. Thus on Oct. 26, 1796, and again on April 21, 1834, great meetings were held there in favour of trade unionism.

Copepoda (Gk. *κόπη*, *oar*; *πούς*, *póds*, foot), an order of Crustaceans which receive their name from the fact that typically they bear five pairs of swimming feet. They are to be found in both fresh and salt water. The free-swimming forms have always a large head, and the body ends in a caudal fork. Some of the species are phosphorescent. *Cyclops* is a well-known fresh-water genus, and *Lonchidium* is parasitic on the gills of sharks.

Copernicus, Nicolaus (1473-1543), founder of modern astronomy, b. at Thorn, in W. Prussia, then a part of Poland. After the death of his father in 1483, Nicolaus was practically adopted by his uncle, Lucas Watzelrode, afterwards Bishop of Ermland. In 1491 he matriculated at the University of Cracow, and gave himself up principally to the study of

astronomy under Brudzewo. He soon abandoned his early idea of taking holy orders, and went as Polish student to the University of Bologna, where he studied canon law. In 1500 he himself lectured on mathematics at Rome with great success. After a short visit to his native land he went in the next year to Padua, where he studied medicine. In 1505 he finally left Italy, and went to spend six years as his uncle's physician at the



NICOLAUS COPERNICUS

castle of Heilsberg. On the death of Lucas in 1512, C. went to Frauenburg, where he had been nominated canon of the cathedral in 1497. Though he never took orders, his activities in this capacity were multi-form, and all his knowledge was freely laid at the disposal of the diocese. However, till the end of his life astronomy was his favourite study; and in spite of his busy life, he found time to perfect at Frauenburg the system of which he had already laid the foundation at Heilsberg. His great theory was broached in 1543 in the *De Revolutionibus Orbium Coelestium Libri VI.*, published at Nuremberg, and dedicated to Pope Paul III. This work demonstrates the theory, already hinted at by the Pythagorean philosophers, that the sun is the centre of the planetary system, and that the earth and the planets revolve round it. Kepler, Galileo, and others developed the system, until it was completed by Newton. See *Prowe's Life and Works*, 1883-84.

Copertino, a com. in the prov. of Lecce, 25 m. W.N.W. of Otranto in Apulia, Italy. Pop. 9960.

Copiapo : (1) A riv. in Chile, S. America. It has a length of 155 m. and a drainage area of 4170 sq. m., and reaches the Pacific 35 m. beyond Copiapo. The irrigation of the surrounding country and the water supply of the town depend wholly on this riv. (2) A tn., cap of the prov. of Atacama, Chile, 1300 ft. above the sea. A desert oasis on the riv., it was formerly a principal centre of Chilean mining, especially silver and copper, but has greatly declined of late. Pop. about 10,000.

Coping, a term applied to the cap or top course of a wall sloping to shed water. There are three kinds of C.: feather-edged C., when the wall has edges of unequal thickness; parallel C., when the wall has a flat C.; and saddle-backed C., when the C. of the wall is thicker in the middle than at the edges.

Copland, James (1791-1870), a Scottish physician, visited W. Africa and lived in London from 1820. He is chiefly remembered for his stupendous *Dictionary of Practical Medicine*, 1832. For some time he edited the *London Medical Repository*.

Copley, John Singleton (1772-1863), see LYNDHURST, BARON.

Copley, John Singleton (1735-1815), an American historical painter, b. at Boston, Massachusetts. Studied at Rome, 1774, and came to England; made Academician in 1783. He was the father of Baron Lyndhurst (q.v.). His best known paintings are: 'Death of Chatham' and 'Death of Major Pierson.'

Coplin, William Michael Late (1864-1928), American physician, b. at Clarksburg, W. Va.; son of Jacob C. Educated at State Normal School, Lindsley Institute, and Mount Union Coll. M.D., Jefferson Medical Coll., Philadelphia, 1886. Pathologist to Philadelphia Hospital in 1892. Professor of Pathology, Jefferson Medical Coll., for nearly thirty years from 1896. Director of the Department of Public Health and Charities, Philadelphia, 1905-7. Medical director, Jefferson Hospital, 1907-12. Major, Medical Officers' Reserve Corps, 1917; director of Base Hospital No. 38; Colonel, M.R.C., 1919. Author of *Text-Book of Practical Hygiene*; and of a *Manual of Pathology, including Bacteriology, the Technic of Post-mortems, and Methods of Pathologic Research*, fifth edition rewritten and enlarged, 1912.

Copparo, a tn. in the prov. of Ferrara, Italy. It has silk industries. Pop. (commune) 22,480.

Coppée, François Edouard (1842-1908), a Fr. man of letters, began his literary career by writing poetry, but in later years chose to use the

play and the short story as the vehicle for the expression of his ideas. At first a clerk in the Ministry of War and for some time dramatic critic to *La Patrie*, he acted from 1878 to 1884 as archivist of the Comédie Française, giving up this position on his election to the Academy. Although he had no opinion of the machinery of democracy, he allied himself with the violent Nationalists, actively opposed Dreyfus, and helped to found the notorious Ligue de la Patrie Française. In his numerous collections of poetry, including *Intimités*, *Poèmes Modernes* (1867-69), *Olivier* (1875), his only long poem, and *Poèmes et Récits* (1886), may be found many delightful illustrations of his lyrical gifts, and especially of his skill in writing Parisian elegies and idylls. Of his plays, *Le Passant* (1869) and *Les Bijoux de la Délivrance*, the latter of which was inspired by the disastrous war of 1870, met with a hearty reception; but *Madame de Maintenon* (1881), *Les Jacobites* (1885), and *Pour la Couronne* (1895) are his more ambitious metrical dramas. In a series of short stories entitled *Toute une Jeunesse* he endeavoured to give a transcript of his early emotional experiences, but his gloomy tale *Le Coupable* (1896) has more interest and vitality. Though banality of thought and sentiment not infrequently detract from the literary merits of his work, his simple, zealous patriotism, his aloofness from the prevalent style of scientific dissection, and the reality of his sympathy with the sufferings of the poor, are likely long to perpetuate his popularity.

Coppenhall, Monks and C. Church are two adjoining parishes, 5 m. N.E. of Nantwich in Cheshire, England. The former is a municipal borough of Crewe.

Copper (symbol Cu, atomic weight 63.18) is found as the metal in various parts of the world, chiefly in the neighbourhood of Lake Superior, but also in other parts of America, Cornwall, Siberia, and the Ural Mts. It is also found in combination with other elements, being an abundant element widely distributed. The name is derived from *aes cyprium* or bronze of Cyprus, the Romans, having obtained most of their metal from that island. In the form of cuprous oxide (Cu_2O) it is found in Cornwall, S. America, and Australia, and is known as *cuprite* or *ruby ore*. Then again, the mineral *copper glance* is really copper sulphide (Cu_2S), while it is also found associated with sulphide of iron in the mineral *copper pyrites* ($\text{Cu}_2\text{S}, \text{Fe}_2\text{S}_2$), and again in the mineral *purple copper ore* ($3\text{Cu}_2\text{S}, \text{Fe}_2\text{S}_2$). The basic carbonate of the metal is also found

in the minerals *malachite* ($\text{CuCO}_3\text{Cu}(\text{OH})_2$) and *azurite* ($2\text{CuCO}_3\cdot\text{Cu}(\text{OH})_2$). These are the minerals chiefly used for the extraction of copper on the large scale, but silicates, phosphate arsenates, and the oxychlorides are also known, and by modern methods the metal may sometimes be extracted from these, especially the silicates.

Methods of Extraction.—(1) *Reducing process*: From those ores which contain no sulphur, such as the carbonates and oxides, the ore may be smelted down in a blast furnace with coal or coke, when the ore is reduced; C. being left and carbon monoxide formed ($\text{Cu}_2\text{O} + \text{C} = 2\text{Cu} + \text{CO}$). (2) *English method*: With mixed ores containing sulphides the process consists of six stages: (a) The ores (containing on an average 30 per cent. of iron and 13 per cent. of C., together with sulphur and silica) are calcined in a reverberatory furnace, some of the sulphur passing off as sulphur dioxide, and the metals becoming partly oxidised. (b) The calcined ore is fused, and the C. oxides react on some of the ferrous sulphide, forming cuprous sulphide and ferrous oxide (because C. possesses a greater affinity for sulphur and a smaller affinity for oxygen than the iron). This oxide of iron then unites with the silica, either present in the ore or added, to form a fusible slag, which is run off. That which remains is known as *coarse metal*, and consists of a mixture of ferrous and cuprous sulphides, containing about 30 per cent. of C. This is allowed to flow into water, causing it to solidify in a granular form. (c) The coarse metal is again calcined, with the same effect as in (a), some of the sulphur passing off and the metals becoming oxidised. (d) This is now fused with refinery slag, and produces nearly pure cuprous sulphide, most of the iron passing into the slag, then known as *metal slag*, which is run off. The remainder after this process is known as *fine metal*, or *white metal*, and contains, perhaps, 75 per cent. of C. (e) This white metal is then roasted in a reverberatory furnace. Some of the cuprous sulphide is oxidised into cuprous oxide, and this reacts on the cuprous sulphide left as the temperature rises, forming C. ($2\text{Cu}_2\text{O} + \text{Cu}_2\text{S} = 6\text{Cu} + \text{SO}_2$), while any remaining ferrous sulphide is turned into oxide. The metallic C. obtained is now known as *blister copper*. (f) This is then refined by being melted on a hearth in an oxidising atmosphere. The impurities present oxidise first and volatilise off or form a slag with the siliceous matter in the furnace bed, forming a slag which is removed.

When the C. begins to oxidise it reacts on any remaining cuprous sulphide, according to the equation above, and at this stage the metal is known as *dry copper*. This is stirred with poles of wood and anthracite thrown on the surface to reduce it thoroughly to the pure metal.

Wet Processes.—(a) *By displacement*: The burnt pyrites obtained from the manufacture of sulphuric acid contains from 3 to 4 per cent. of C. It is not rich enough to be submitted to the smelting process, but it is ground and intimately mixed with 10 to 15 per cent. of common salt. It is then roasted in a reverberatory furnace, a large amount of the iron being thus removed as ferric oxide, while the C. remains mainly in the form of cupric chloride. This is lixiviated with water and the C. salt goes into solution, and the C. is precipitated from this solution by means of scrap-iron: $\text{CuCl}_2 + \text{Fe} = \text{Cu} + \text{FeCl}_2$. (b) *Hydro-metallurgical*. Poor ores may sometimes be successfully treated by the hydro-metallurgical system, which consists in allowing the crushed ore to weather in the presence of water. After some months, the copper will have become converted into soluble copper sulphate, which can be run off in solution and the copper extracted by precipitation with iron or by electrolysis. (c) *Electrolysis*: Although this method is sometimes used for obtaining C. from 'white metal,' and even from the ore, yet it is usually employed as a means of refining the already purified metal. Such refinement is necessary for most of the purposes for which copper is used, especially in electricity. Commercial copper, refined in this way is one of the purest 'commercial metals,' its purity being about 99.9 per cent. Ingots of the metal are hung in a series of tanks containing a solution of C. sulphate acidified with sulphuric acid. These form the anodes, and thin sheets of pure C. which are also placed in form the cathodes, on which, as the current passes, pure C. is deposited. The impurities pass into solution, unless they are silver and gold, when they settle as a slime on the bottom of the tank. So this method is also used to recover silver and gold, as well as to produce a very pure C., and the value of the precious metals is frequently considerable.

Properties.—It is a lustrous metal with a characteristic reddish-brown colour. It is an extremely tough metal, and can be drawn out into a thin wire or hammered into a thin leaf. Small impurities considerably reduce this high ductility and

malleability. When heated nearly to its melting-point it becomes brittle and can be powdered. Its specific gravity is 8.94 (approximately). It is only slowly acted upon by dry air at the ordinary temperatures, but in moist air containing carbon dioxide it becomes covered with a green basic carbonate. Heated in air or oxygen it forms black cupric oxide, which flakes off the surface in scales. When volatilised in the electric arc it gives a rich emerald-green vapour. It is readily acted upon by nitric acid, and while dilute sulphuric and hydrochloric acids slowly attack it in air, strong sulphuric acid, unless heated, has no action upon it. It is an extremely good electric conductor, being second only to silver, and it is therefore used extensively in cables, for electric telegraphy, lighting, etc. It is also used extensively in electrotyping, because of its property of being deposited in a coherent form from solutions of its salts when electrolysed.

Alloys.—It is most extensively used probably in the formation of alloys, many of which are of great technical value. Among them may be mentioned the following, which are among the most important:—English brass, C. 2 parts, zinc 1 part; Dutch brass, C. 5 parts, zinc 1 part; Muntz metal, C. 3 parts, zinc 1 part; gun-metal, C. 9 parts; tin, 1 part; aluminium bronze, C. 9 parts, aluminium 1 part; manganese, C. 21 parts, manganese 3 parts, nickel 1 part; German silver, C. 2 parts, zinc 1 part, nickel 1 part.

Copperas is sulphate of iron, and is known also as green vitriol. It is prepared on the large scale by exposing heaps of iron pyrites to the action of air and moisture. The liquor which drains away contains ferrous sulphate and sulphuric acid, and the latter is mixed into ferrous sulphate by adding scrap-iron. It forms pale green monosymmetric crystals, having the composition $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$, and is readily oxidised on exposure to the air. It is used for making ink, for dyeing, and as a dressing for crops.

Copperhead, *Moccasin-snake*, or *Ancistrodon contortrix*, is a poisonous reptile of the family Viperidae, and is allied to the rattlesnake. In length it is about 3 ft., and there is no rattle in the tail, an omission which makes it dangerous to man. It is found in meadows and damp places of N. America and feeds on small vertebrates.

Copperheads, a term of opprobrium applied by men of the northern states of the U.S.A. during the Civil War to fellow northerners who opposed the war policy of the Union

government. Many of the latter did this because they did not believe it possible to conquer the Confederacy. In the later years of the conflict, the term was largely applied to northern Democrats. In the U.S.A. there are two especially deadly snakes, the rattlesnake and the copperhead. The rattle snake is popularly supposed to give warning when it is about to attack by rattling the cup-like horny attachments at the bottom of its tail, whereas the copperhead is a deadly silent hunter. Hence the popular origin of the term as applied to political opponents.

Coppermine River, a riv. 475 m. long, in Mackenzie district, Canada. The many lacustrine expansions and rapids in its course render it useless for navigation. After a southerly direction as far as Lake Gras, it turns N.W., finally reaching Coronation Gulf, Arctic Ocean.

Copperplate, see ENGRAVING.

Coppet, a vil. on the Lake of Geneva, 8 m. N. by E. of Geneva, Switzerland. Here are the ruins of a château where Necker and his daughter, Madame de Staël, spent part of their lives. Pop. 515.

Coppice, see CORSE.

Copra, the commercial and native name for the sun-dried kernel of the cocoanut, which forms a staple export from the S. Pacific islands. The cocoanut oil obtained from the kernel is in much demand.

Coprolites, which are frequently used as artificial manure, consist of the petrified droppings of animals, principally of extinct reptiles and fishes. In diameter they vary from about 2 to 4 in., and in composition they have often a large quantity of phosphate of lime. They are most abundant in the shale of the Lias, and in various parts of N. America.

Copse, or *Coppice* (from Gk. *κόλαφος* and Lat. *colpare*, to cut, through Old Fr. *copeis*), a small plantation of planted or self-sown trees, which are periodically cut over before they become timber-trees, either to beautify the landscape or more often for commercial reasons. Oak coppice is valuable for making wheel-spokes, etc., ash for hurdles, hoops, and the handles of implements; hazel and willow for crates and hoops, and willow and osier for basket-making. Smaller pieces of coppice wood, including chestnut, maple, elder, elm, and birch, are used in many countries for fuel and charcoal.

Coptic Language, a descendant of the ancient Egyptian with a considerable admixture of Gk. It was divided into five chief dialects: the Sahidic or Thebaic, the Achmimic, the Bohairic, the Memphytic, and the

Fayumic. The earliest of these is probably the Sahidic, while the Bohairic appears later than the others and then assumes the first place. The Bible was translated into no fewer than three dialects before the fourth century. Hardly any of the Coptic literature is original. With the exception of some sermons of Shenoute, a monk of Atrêpe, it consists chiefly of translations from the Gk. At first Coptic was almost monosyllabic like the Egyptian, but at a later period it became highly agglutinate. Hence the morphological side was hardly developed, but the phonology became the real basis of the grammar. After the Arabian conquest in the seventh century, the C. L. began to decline, and finally died out in the sixteenth century. In the form of the Bohairic dialect it has survived in the liturgy to the present day, though the epistle and gospel, after having been read in Coptic, are also explained in Arabic. Arabic is now universally used.

Copts, the native Christian descendants of the anct. Egyptians. The name is the Europeanised form of the Arabic *Kubî*, which probably derives from the Gk. Αἰγύπτιοι (Egyptians). A very large number live in Cairo and the other large towns of N. Egypt, but they are also found throughout the country. They are, in general, the best educated section of the community. The history of the C. is intimately bound up with their faith. They claim to have received the gospel from St. Mark, first Bishop of Alexandria, but they were easily corrupted and embraced the Monophysite heresy. This was condemned by the Council of Chalcedon in 431, and immediately a fierce struggle arose between the orthodox and the heterodox. The orthodox party, being supported from the imperial city of Rome, were at first in the ascendant, and the Monophysites did not scruple to call in the Moslems to their aid. Thus came the Moslem invasion in 640, and after a few years of Arabian rule the orthodox were almost entirely exterminated. A few still survive under the orthodox patriarch of Alexandria. The Coptic Christians in their turn were also cruelly oppressed by the Mohammedans, who forced them to submit to all kinds of degradation, and destroyed hundreds of their churches. Having been thus cut off for so many centuries from the influence of the rest of Christendom, the Coptic Church has preserved its anct. liturgies and customs almost intact. It is, therefore, of great interest to students of liturgiology, and has received a good

deal of attention of late years. Except for their Monophysite heresy, the C. hold the faith in exactly the same form as the Gks., with whom they share in holding the single procession of the Holy Spirit. Some few C. are Rom. Catholics and Protestants.

Copula, a term in logic which expresses the relation between the subject and predicate, and is always applied to the verb to be, whether expressed or implied. Example: 'Life is short,' here 'is' is the C., whilst in the sentence 'the child grows,' the C. is implied in the verb grows, viz. 'is growing.'

Copyhold, one of the anct. laws of land tenure known as C. still exists in England, although much modified in its present form. C. may be defined as holding at the will of the lord according to the custom of the manor, and dates back to feudal times. The lord of the manor bestowed a portion of his land on his labourers or villeins, who did him personal service in return for the land, which, however, often reverted back to the lord on the death of the tenant. Later on in history the tenant's right was observed, but many tiresome customs have survived, such as fines or heriots. C. is quite different from freehold in the manner in which it is conveyed. C. land is surrendered to the steward, who represents the lord of the manor; the steward then surrenders the C. to the new owner, and in each case the conveyance by surrender is made by a symbolical delivery. An Act passed in 1894 enables (subject to the consent to the Board of Agriculture), C. to be converted into freehold.

Copying, a general name given to the many processes employed for reproducing, either in actual size or on an enlarged or reduced scale, a drawing, map, plan, document, or other object. In the case of drawings which are required to be the actual size of the original, the most convenient way is to trace them, which is done by placing a sheet of tracing paper over the drawing and going over the main lines with a pencil. A piece of paper coated with black lead or ruddle is then placed between the tracing and the sheet upon which the copy is required, and the traced lines gone over with a hard point, so transmitting faint lines on the paper, which serve as indications for filling in the rest of the drawing. If the copy is required of a different size from the original, the method of squares is usually employed. The original is covered with squares of uniform size by pencil lines, or placed under squared tracing paper, and a piece of paper prepared with a corresponding number of squares of proportionate

size, according to the copy required. Each part of the drawing is then copied into its corresponding square on the copy. Another method is to take a photograph of the object to the exact size required. Engineers' drawings are frequently copied by the ferrocyanide process, which yields white lines upon a blue background and prevents any additional lines being subsequently added. The C. of letters is usually done by the ordinary C. press. The letter is written in C. ink and placed between sheets of damped paper to which the copy is transferred by pressure. For duplicating or manifolded copies of forms or invoices, carbonised paper is placed between sheets of flimsy paper and transmits the impress of the pencil. Where many copies of a letter are required, the hectograph process is used. The letter is written in special ink and transferred by pressure to a gelatine slab, whence it is retransferred to successive sheets of paper by gently pressing them upon the gelatine. Type-written documents are duplicated by stencilling the document upon a wax sheet and then pressing a special kind of ink through the wax on to the blank sheet by means of an indiarubber roller. The lithographic process is employed to obtain numerous copies of a letter in MS., and the photo-lithographic process for C. engineers' and other drawings in line (see LITHOGRAPHY).

Copyright means the sole right in the case of unpublished works to produce or reproduce a work or any substantial part of a work in any material form whatsoever, or to perform in public or give any acoustic representation of a work or any visual representation of it by means of any mechanical instrument; and in the case of a published work, the sole right to publish the work or any substantial part of it. C. also includes the sole right to produce, reproduce, perform, or publish any translation of a particular work, to convert a dramatic work into a novel or other non-dramatic work, to convert a novel or other non-dramatic work or any artistic work into a dramatic work, to make any record, film, or other contrivance for mechanically performing or delivering any literary, dramatic, or musical work, and to authorise any of the above acts. The whole of the law of C. is now to be found in the Copyright Act, 1911, and the rules and orders in council made in pursuance of the Act, and as to musical C. also in the Musical Copyright Acts, 1902 and 1906. The law of C. as it existed before the Copyright Act, 1911, was unsystematic, inconsistent, and deficient. By the

Act of 1911 all the previous statutes, extending back to 1734, were repealed and the whole law of C. consolidated and in many respects assimilated to principles familiar on the Continent. The two Musical Copyright Acts, 1902 and 1906, remain unrepealed. A further object of the Copyright Act, 1911 (which came into force on July 1, 1912), was to assimilate the law of C. throughout the empire, and to that end the Act provides that where any self-governing dominions accept its provisions C. relations with such dominions shall be in accordance with the system of the Berlin Convention. A considerable amount of new matter has been added by the Act to the list of works entitled to C. protection, and the Act also profoundly modifies the old conception of C. as a mere right of multiplying copies of an original work for the purpose of sale. C. formerly comprised only literary compositions and artistic works, the latter including engravings, paintings, photographs, designs, and sculpture. Progress in the art of mechanical representation or reproduction has led to the extension of C. protection to cinematograph and phonographic films and records and rolls respectively. Architectural works if original are also protected. Under the old law it was necessary to register C. under the old law depended on both registration and publication. The infringement of an unpublished work merely gave a common law right to sue for damages. The new Act abolishes registration in accordance with the recommendations of the Berlin Convention, with the result that an author is protected in respect of his unpublished works provided only he be a British subject or resident at the time of making the work in such self-governing dominions of the empire as have adopted the Act, or a resident in any other part of the dominions of the empire. As respects a published work C. exists immediately on the first publication within the British dominions to which the Act extends. Publication in relation to any work now means the issue of copies of the work to the public, either gratuitously or for payment. Publication does not include the performance in public of a dramatic or musical work, the delivery in public of a lecture, the exhibition in public of an artistic work, or the construction of an architectural work of art, nor does the issue of photographs or engravings of works of sculpture and architectural works of art constitute publication. A dramatic or musical work is only published by being issued to the public in the shape of

copies of the play or musical composition in question. The unauthorised performance of a play, musical piece, or any other work capable of representation necessarily amounts to an infringement of C. The importance of publication since the passing of the Act of 1911 lies partly in the statutory classification and extension of the different modes in which C. arises, and partly in the computation of the term for which it subsists. Formerly the term was for the author's life and for seven years after his death, or for forty-two years, whichever period was longer. The term is now the life of the author and a period of fifty years after his death. In regard to all literary, artistic, dramatic, and musical works, C. subsists in the unpublished work from the date of the 'making' or creation of the work, and from and after 'publication' the right continues for the life of the author and for a period of fifty years after his death; but after the expiration of twenty-five years (or thirty years in the case of a work in which C. subsists at the date of the passing of the Act) from the death of the author of a published work, it constitutes no infringement to reproduce the work, provided notice in writing be given and royalties in respect of all copies sold be paid to the owner of the C. in accordance with the Board of Trade regulations. Where the author dies without having published his work, C. subsists until publication and for a term of fifty years after publication. C. in photographs subsists for fifty years from the making of the original negative; and in the case of the works of joint authors C. subsists during the life of the author who first dies and for a term of fifty years after his death, or during the life of the author who dies last, whichever period is longer. Fair dealing with any work for the purposes of private study research or criticism does not constitute infringement of C. An author may also, after parting with his C., make use of any mould, sketch, or plan of his work, provided he does not repeat the main design of the work. Nor is it an infringement to recite in public any reasonable extract from any published work, or to publish in a newspaper a report of a lecture delivered in public, the publication of which is not prohibited. It is an infringement of C. to permit for private gain a theatre or other place of entertainment to be used for the performance in public of a work without having obtained the consent of the owner of the C., unless the person so doing had no reasonable ground for suspect-

ing that the performance would be an infringement. The law also makes provision for the issue of compulsory licences to reproduce works where the author or owner of the C. refuses to allow republication. The author is the first owner of the C. unless he has done the work on commission, in which case it belongs to the person who employed him. The civil remedies for infringement of C. are an action of damages, together with a claim for an account of the profits, and if a repetition is apprehended the owner may also ask for an injunction. An injunction will also be granted in the case of an unpublished work where the owner of the C. fears that his right is threatened, or that an unauthorised publication is intended. Furthermore all copies printed and published must be delivered up to the owner. The owner may also take proceedings where necessary to get possession, not only of all infringing or 'pirated' copies of his work, but also of all plates used or intended to be used for the production of such infringing copies. In U.S.A. C. law, registration is still necessary. The application for registration must specify whether the work in which C. is claimed is of the class of books, periodicals (including newspapers), dramatic or musical competitions, maps, works of art, or reproductions thereof, drawings, or plastic works of a scientific character, photographs, prints and pictorial illustrations, motion pictures or motion picture photo-plays. Works not reasonably capable of falling under any of the above cannot be copyrighted. In 1928, C. legislation was enacted increasing the C. fee for registration of all published works to \$2, the fee being, previously, \$1; but, for an unpublished work, the registration fee is still \$1. Fees for most of the remaining C. services were also correspondingly increased. To secure registration: (1) The work must have been published in the U.S.A.; (2) two copies of the best edition of the work must be sent to the Copyright Office, Library of Congress, Washington, promptly after publication. Books by American authors must have been printed and bound in the U.S.A., but not books of foreign origin in other than the Eng. language. Books in Eng. published abroad prior to publication in U.S.A. can secure *ad interim* C. for thirty days if a copy of the foreign edition be deposited within thirty days of publication abroad; which term will be extended to the full period when the ordinary conditions have been fulfilled. The original term of C. is

28 years, but the author or his representative can, within one year prior to expiration, get a renewal for another 28 years, or 56 years in all. C. may be assigned by any instrument in writing. Registration at Stationers' Hall under the Act of 1842 terminated Dec. 1923. In 1924 the Stationers' Company established a new Register in which Books and Fine Arts can be registered. A copy must be filed at Stationers' Hall and certified copies of the entries are issued; fees 5s. for a book, 2s. 6d. fine arts: certified copies in each case 5s. These copies are of use in giving evidence of work on a given date in case of infringement.

International Copyright.—For the mutual protection of works circulated in countries other than that in which they were first published, certain nations signed a convention at Berne in 1887. The signatories were Great Britain, France, Germany, Belgium, Italy, Spain, Switzerland, Tunis and Haiti, and subsequently Norway, Japan, and others joined the Copyright Union, but not the United States, Holland, or Russia. The basis of the Berne Convention was the reciprocal extension to foreign authors and publishers of similar rights to those enjoyed by native authors and publishers provided the formalities as to registration, etc., required by the country of first publication were complied with. This convention was revised in 1896 and again at Berlin in 1908, and this, the so-called Berlin Convention, has now superseded the Berne Convention so far as those nations of the Copyright Union who have ratified it are concerned. The signatories to the Berlin Convention include Great Britain, France, Germany, Spain, Denmark, Switzerland, Italy, Belgium, Norway and Sweden, Monaco, Japan, and Liberia. Great Britain has signed and ratified a special convention at Vienna with Austria-Hungary. The U.S.A. remain outside international conventions other than the Pan-American conventions made between them and other American states, but power is vested in the President to give facilities by proclamation to foreigners to acquire C. in their works. Otherwise protection is gained by simultaneous publication in the U.S.A. and the author's country. Similar observations apply in the case of Russia, Austria, and Holland, who are also bound by no international code. Refer to Copinger, *On the Law of Copyright*.

Coquelin, Benoît Constant (1841-1909), a Fr. actor, destined to be a baker, but fortunately his histrionic talent was discovered, and he was

allowed to enter the Conservatoire and studied under Régnier. Here he gained the second prize for comedy (1860), and in the same year played the part of the comic valet, Gros René, in Molière's *Dépit amoureux* at the Comédie Française. In 1864 he became *sociétaire* of that theatre, and for the twenty-two years following played with conspicuous and well-deserved success the leading rôles in over forty new plays. He excelled in the impersonation of characters with a humorous bias, and his originality was especially marked in such plays as de Banville's *Gringoire*, 1867; Ferrier's *Tabarin*; Emile Augier's *Paul Forestier*, 1871; Dumas' *L'Etrangère*, 1876; Lomont's *Jean Dacier*, 1877; Pailleron's *Le Monde où l'on s'ennuie*, 1881; and Erckmann and Chatrian's *Les Rantzau*, 1884. As there had been some difficulty over his provincial and foreign tours, he gave up in 1886 his position at the Comédie Française and spent two years visiting with his company the chief cities of Europe and America. From 1890 to 1892 he was again associated with his old theatre, where he appeared as Labussière in Sardou's *Thermidor*, but in 1892 he again went on a foreign tour and never afterwards appeared at the Comédie. For two years from 1895 he acted at the Renaissance Theatre in Paris, but in 1897 became director of the Porte-Saint-Martin. It was here that he created his most famous and probably his finest rôle, that of the inimitable Cyrano de Bergerac, in Rostand's play of that name (1897). Such was his success in this part that Rostand is said to have written *Chantecler* solely for C. But C. d. quite suddenly in the midst of the rehearsals for this new romantic drama, which was to have carried Paris by storm. In 1900 C. visited America once more, this time with Sarah Bernhardt, with whom he afterwards appeared in *L'Aiglon* at her theatre.

Coquelin, Ernest (1848-1909), a Fr. actor and author, was the brother of Benoît Constant C. He played at the Odéon and the Variétés, but was mainly associated with the Comédie Française, where his spirited and witty interpretation of a series of comic rôles attracted large audiences. His humorous *Livre des convalescents* (1880) and *Fariboles* (1882), etc., afford delightful reading.

Coquelin, Jean (b. 1865), a Fr. actor, the son of Benoît Constant C. He toured with his father in America and England, and played also at the Comédie Française and the Renaissance, his chief rôles being Ragueneau in *Cyrano de Bergerac*, and Talleyrand in *Plus que reine*.

Coquerel, Athanase Josué (1820-75), a Fr. Protestant divine, assisted in 1852 in the publication of the first scientific theological review of his country (*Nouvelle Revue de théologie*). In such works as *Jean Calas et sa famille* (1857), *Précis de l'église réformée* (1862), etc., he gave expression to his enlightened ideas, whilst he wrote also on art. See *Des Beaux Arts en Italie* (1857).

Coquerel, Athanase Laurent Charles (1795-1868), a Fr. Protestant divine, spent twelve years of his life in Holland (1818-30). From 1831 to 1844 he edited three papers, *Le Protestant*, *Le Libre Examen*, and *Le Lien*, and by his advocacy of a wider religious freedom excited the anger of the orthodox Calvinists. His contemporaries admired him chiefly for his inspired oratory; but he found time to write many works, including a *Réponse to Strauss' Life of Christ* (1841), and a treatise on the Reformed churches of France (1861).

Coques (or Cox), Gonzales (1618-84), a Flemish painter, was a pupil of Pieter Breughel, and later of David Ryckaert the second. In 1671 he became painter in ordinary to Count Monterey, governor-general of the Low Countries. Sometimes he depicted tavern and rustic scenes, but he excelled in portraiture, for which he took Van Dyck as his model. Rarely he painted life size, but most of his canvases are 'cabinet.' His earliest portraits represent members of his own family; later he drew his friends, and soon men of note and rank came crowding to his studio, and the Archduke Leopold, the Prince of Orange, and Charles I. of England vied with one another for the possession of his work. His 'Picnic' and 'Rest in the Fields' afford excellent illustrations of his high finish, rich tones, and mastery over the details of composition.

Coquette, used in a derogatory sense of a girl who uses every art to attract admiration and attention from the opposite sex, wishing thereby to please her vanity. The word is derived from the Fr. *coqueter*, to cry like a cock, and thence, to swagger.

Coquimbo, a prov. and tn. of Chile, S. America, with 325,000 head of cattle, as compared with 51,000 in Atacama and 6500 in Aconcagua, so much less scanty is the rainfall. The chief industry is mining copper, gold and silver. The prov. is nearly entirely filled with branches of the Cordillera mountains. Area 13,200 sq. m. Pop. 162,670. The tn. is one of the best ports on the Chilean

coast with about 17,000 inhabs. and exports of ores and hides.

Coquito, or *Jubæa spectabilis*, is a palm which constitutes a genus in itself. The sap is evaporated by the natives of Chili to make it yield a palm-honey.

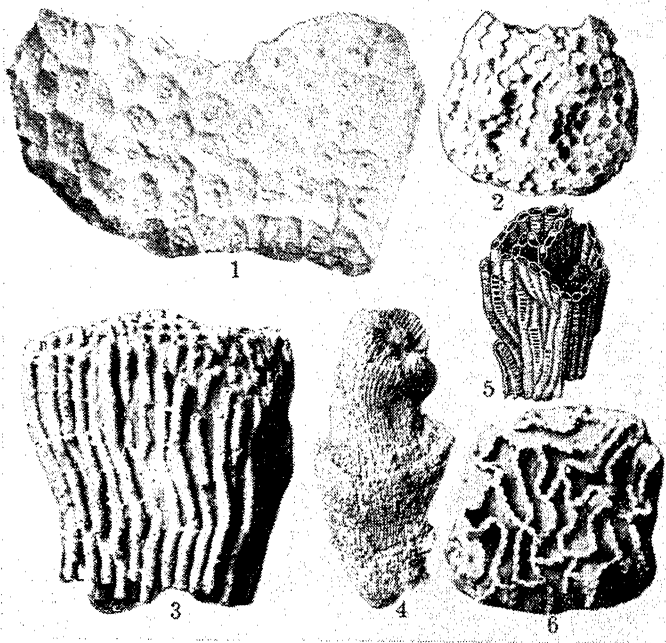
Coracle, or Currach (Lat. *curuca*, Welsh *corcigl*), a skiff with a slight wooden frame, covered over with hides, and made water-tight by a coating of tar and pitch. Cæsar describes the Cs. in use among the Britons of his day, and history speaks of a seven days' voyage by missionaries in 878 from Ireland to Cornwall in a C. made of two and a half skins. Cs. were oval in shape, about 3 ft. by 4 ft. in size, there being room for one person only. The rower propelled himself by a paddle. If two men went fishing in Cs., they held the net between them, hauling it up after a catch till their boats touched and the fish could in this way be secured. This kind of canoe is still used on the R. Severn and in Clare, whilst light boats, very similar, are built for crossing the lakes on the way to Klondike after the passage of Chilkoo Pass, Alaska.

Coracoid Process, a beak-like projection in the upper part of the scapula, or shoulder blade. It may be felt by pressing the finger in the depression just below the collar-bone, two-thirds of its length outwards.

Coral, the solid support or hard skeleton of various marine organisms. It is secreted from sea-water, and is chiefly carbonate of lime. The Anthozoan polyps are the principal source of the C. reefs of the world. The skeletons of many other organisms contribute to C. masses, such as Polyzoa and Mollusca, but these cannot be properly included in the term C. The reef-building Cs. are the 'Madrepora' and 'Meandrina,' confined to waters in which the temperature does not fall below 68° F. even in the coldest months. C. reefs are abundant in the W. Indies, on the coast of Brazil and on the Central Pacific. They are divided into fringing, barrier, and circular reefs or atolls, the latter varying greatly in outline. The great C. reef regions are within the limits of the trade-winds and monsoons, with the exception of the Ellice and Marshall Islands. According to Darwin, atolls were supposed to have been formed on submarine banks over a subsiding sea-bottom, and this subsidence theory accounts for C. reefs over 100 ft. or so, in thickness, but only where the C. reef-rock is only about this thickness. Apart from that we really have few data to support the Darwinian theory of sub-

sidence. Cs. may be roughly classed under two heads—horny, and lime or stone Cs. The former consist chiefly of a horny secretion from the polyps, while the stone coral consists almost entirely of lime firmly joined in a solid mass. All possible gradations, however, can be found, so that it is impossible to draw a sharp line between the two groups, the central point of the Cs. forming the family.

This C. is susceptible of a high polish, and is largely used for ornamental purposes. It has a shrub-like, branching form, and grows about a foot high, being as thick as the little finger of the human hand. Extensive 'fisheries' are carried on in the Mediterranean, and it is exported to India. Red C. is also obtained in the Red Sea and Persian Gulf. Black C. is still more highly prized, and has a wide distri-



SILURIAN CORALS

- 1, *Strombodes pentagonus*; 2, *Favosites favosus*; 3, *Diphyphyllum multicaule*;
4, *Omphyra verrucosa*; 5, *Halysites catenulatus*; 6, *Halysites catenulatus*,
seen from above

Corallidæ is quite solid, and is produced in concentric layers by the living gelatinous substance enveloping it, and from which the polyps project. When the C. is taken out of water, the gelatinous living part soon decomposes and disappears. Beyond their general utility and value as sources of lime, Cs. are not of any especial industrial importance with the exception of the red C. (*Corallium rubrum*) of the Mediterranean Sea.

tribution, growing to a considerable height and thickness in the tropical waters of the Great Barrier Reef of Australia. From remote times, C. has been highly prized for personal ornaments, and decorative purposes generally. In India, a great trade was carried on from the beginning of the Christian era, and it was esteemed as a substance endowed with sacred properties. A belief in its potency as a charm continued to be enter-

tained throughout mediæval times, and among the Romans, branches of C. were hung round the children's necks to preserve them from danger, and many medicinal virtues were attributed to it. In Italy at the present day, C. is worn as a preservative from the evil eye. The range of value of C. varies according to colour and size, and its price is considerably affected by the fluctuations of fashion. Rose-pink C. is the most valuable. Good coloured C. commands high prices in China, where it is in great requisition for the button of office worn by the mandarins. It is also a favourite ornamental substance with the negroes of Central Africa and America.

Coral Fishery has, since the beginning of the Christian era, been a lucrative trade. The finest fisheries are along the N. coast of Africa, in Tunisia, Algeria, and Morocco. Before the sixteenth century these coral reefs were controlled by the Italian republics. For a time the Tunisian reefs fell into the hands of Spain, but the monopoly of trading was ultimately secured by France, who held it till 1793, when the trade was thrown open to other nations. For a short period the control lay in the hands of Great Britain, but finally was regained by France. Boats not bearing the Fr. republic flag have to pay heavy dues to fish. Coral is only fished once in ten years, as it requires that time to develop. The boats vary in size from 3 to 14 tons. The raw material is made up chiefly in Italian cities. There are also valuable coral reefs off the coast of Italy, Catalonia, and Provence. Black coral is found in the Persian Gulf, and in great quantities in the Great Barrier Reef of Australia. Some red coral has recently been fished off the W. coast of Ireland, and also occurs off the N.W. coast of Africa.

Coral Flower, Coral Tree, or *Erythrina corallodendron*, a beautiful species of Leguminosæ allied to the cockscomb. The plant is a W. Indian tree bearing long racemes of dark red papilionaceous flowers.

Coral Islands and Reefs are low islands or reefs formed from the petrified calcareous skeletons of coral polypi. They may best be subdivided into three classes, one of which often develops from the other. *Fringing reefs* are found extending outwards from the shore of an island from which they are not separated by a channel. *Barrier reefs*, on the other hand, are found at some distance from the shore along which they extend at a more or less uniform distance. The greater part of such a reef is submerged, its place being

marked by the line of breakers, but in places it rises above the sea-level, and here sparse vegetation is found. The channels which lie between reef and shore are of the greatest value as providing roadsteads for shipping. The greatest of barrier reefs is the Great Australian Barrier Reef off the coast of Queensland which stretches intermittently for over a thousand miles. *Atolls* are small is. roughly circular in shape and enclosing a lagoon. These typical coral is. vary greatly in size, and have sometimes a length of over 70 miles. Beneath the lagoon, to which there is usually access through a gap in the encircling ring, is a coral floor. The depths of these lagoons vary from a few feet to about 300, and frequently the lagoon forms a safe harbour for ships. Coral polypi flourish most in the W. Pacific and in the shallow seas near Australia, Mexico, the W. Indies, and New Guinea. The reefs and is. are composed principally of rock which bears but little superficial resemblance to the organic substance which we recognise as coral. The foundation is one of white limestone which often further assumes a crystalline form under the influence of chemicals present in the salt water. To this are added coral fragments washed off from another part of the reef and rendered shapeless by pressure. Sand and the skeletons of other molluscs, radiates, etc., form the rest of the mass, and on this the living coral builds. The growth of the coral polyp is restricted by many circumstances. Warm salt water is required, free from cold currents, and with a temperature which does not fall below 68° F., and the polyp must also have abundance of food if it is to develop properly. The water must be clear, not muddy, and the deposit on which the polyp lives must be near the surface of the water and yet not below the level of the lowest neap tides. The rate of growth varies with the species and the conditions; some species build at the rate of 1 in. per year, others at the rate of 3 in. per year, and still higher rates of progress have been chronicled in certain parts. Since the growth of coral is restricted by so many conditions, the circumstances and procedure by which is. and reefs have come to their present state have been much discussed. The first serious attempt to provide a theory was made by Adelbert von Chamisso (b. 1781), who made a voyage through the South Seas from 1815 to 1818. He conjectured that the coral structures were built up in places where the sea bottom came near to the surface—in short on submarine mountains. Growth took

place on the sloping sides of the mountains, and continued in an outward direction so that the atoll with its lagoon was the result. This conjecture, however, was hardly a happy one, since it is somewhat difficult to imagine a sufficient profusion of submarine mountains to account for the various coral islets and reefs scattered throughout the tropical and semi-tropical seas. The subject next engaged Darwin's attention during the celebrated voyage of the *Beagle* (1831-36). He propounded the view that the construction of the reefs had commenced when the land was near the surface of the sea, and that subsidence had then followed as the growth proceeded. When first built, therefore, every coral structure would be a fringing reef, when the land actually rose above the surface. As the land sank, construction would continue on the old foundations and a barrier reef would result. In time the land would entirely disappear, and the atoll, the final form, would be complete. Much evidence was brought to confirm this theory, and for long it was the generally accepted one, being supported by Professors Dana and Jukes among others. The researches, however, of Professors Semper, Agassiz, and others among the Atlantic reefs of Florida, etc., have rendered it insupportable as a universal hypothesis. The condition of the coral structures here must be attributed solely to the natural growth of the polyp and the action of the sea, and Semper's researches among the Pelew Islands supported Chamisso's view in this case at all events. Darwin, however, has not precluded the possibility of some reefs arising in this way. In 1820, Sir John Murray, when present with the *Challenger* expedition, gave much attention to the subject of coral growths, and published a memoir which shows a partial return to Chamisso's position. Direct opposition to Darwin is shown by the fact that he considers the atoll to be the first stage in the growth and the fringing reefs to be the final one. He meets the objection that so many mountains are unlikely to occur, by saying that it is unnecessary to suppose that these were at first of anything like equal level. In some parts, land originally above sea-level would have been reduced by the action of the sea, while in others land would have been raised by marine deposits. He also refines on Chamisso's explanation in other ways. He traces the stronger growth on the outside to the additional amount of food which would be obtained there, and explains the lagoon by the statement

that the dead coral on the inside would be removed by the solvent action of the salt water. The investigations of Dr. Guppy among the Solomon Islands (1887) have done much to support Murray's theory, but it is now generally felt that both this and the Darwinian hypothesis are true on various occasions. See Darwin's *Structure and Distribution of Coral Islands*, 1889 (3rd edition); Dana's *Coral Islands*, 1890 (3rd edition); Murray's 'On the Structure and Origin of Coral Reefs and Islands' in *Proceedings of the Royal Society of Edinburgh*, 1879-80; W. Saville Kent's *Great Barrier Reef of Australia*, 1893, and Semper's *Animal Life*, 1881, in *International Science series*. See ATOLL.

Corallian (Fr. *Corallien*), in geology, the name of one of the divisions of the Jurassic rocks. The rocks forming this division are mainly calcareous grits and limestones with rubbly coral rock.

Coralline, the popular name applied to *Corallina*, a genus of calcareous alga. *C. officinalis* is a beautiful seaweed of red colour, but others are often purple.

Coralline Crag, a crag of from 40 to 60 ft. thick exposed at various localities in Suffolk, belonging to the Pliocene period. The Crag is formed of friable calcareous clay, and contains an abundance of shells and corallines, hence its name.

Coral Sea, stretches between the New Hebrides to the E. and Australia to the W., being part of the Pacific. The coral reefs give the sea its name.

Coral Snakes, relations of the Cobra in the family Colubridæ. *E. corallinus* is a typical specimen; it occurs in the tropical forests of S. America, and its small body, less than 3 ft. in length, is ringed with coral-red. It is highly poisonous, but has so small a mouth that it need not be dreaded by man.

Coran, see KORAN.

Cor Anglais, or English Horn, a wind instrument of the reed species, belonging to the oboe family, of which it is the tenor. It is similarly related to the oboe as the basset horn is to the clarinet. A C. A. differs from an oboe in having a larger globular bell at the bottom, and a wider conical bore to the wooden tube. It has a compass of two octaves and a fifth, and possesses a piercing tone, its quality, however, being more mellow and mournful than that of the oboe. In his Italian version of *Alceste*, Gluck wrote parts for C. A. (1767) 'Anglais' probably is a corruption of 'anglé,' many of the earlier instruments being crooked or bent.

Caraopoliso, a borough 10 m. N.W. of Pittsville, Penn., U.S.A. with manufs. Pop. 6162.

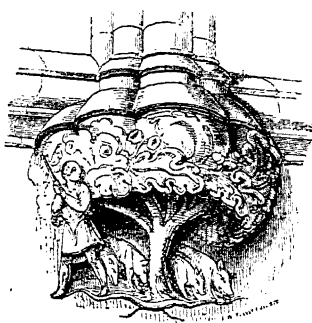
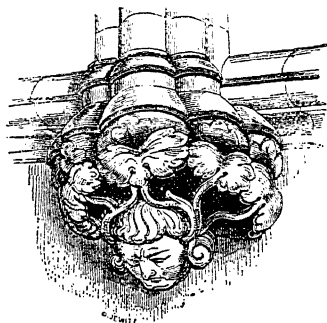
Corato, a tn. in the prov. of Bari, which lies 24 m. to the E., in Apulia, Italy. Pop. 50,010.

Corban, an Aramaic word, signifying 'a consecrated gift.' Such was the spoil of Jericho which Achan acquired. It was a sign of piety in a Jew to deprive himself of wine or some other goods by calling it 'C.' but in the time of Jesus the scribes warped this custom by making it a cloak to their own selfishness.

Corbeil, a tn. in the dept. of Seine-et-Oise, France, on the R. Seine, 19 m. S of Paris by rail. It has important

were *Poetica Stromata*, 1647; edited with a life of the author by Octavius Gilchrist, 1807.

Corbett, Harvey Wiley, American architect; b. 1873, at San Francisco; son of Samuel Jas. C., M.D. B.Sc., Univ. of California, 1895; graduated Ecole des Beaux-Arts, Paris, 1900. Member of the firm of Helmle and Corbett, New York. Lecturer in architecture, Columbia Univ. Member of advisory board of School of Architecture, Princeton. Designed and built: Maryland Institute, Brooklyn Masonic Temple, Springfield (Mass.) Municipal Group, New York School of Applied Design for Women, Bush Terminal Office Build-



CORBELS

(Merton College Chapel, Oxford)

mills and agricultural trade. Pop. 11,230.

Corbel, in architecture, is a projected piece of stone, wood, or iron placed so as to support a pillar or a weight of materials. In Norman architecture the cornice is supported on C. stones, the ends of which are carved; and in old Eng. castles the main beams of the floors were frequently carried on large C. stones, as at Porchester Castle. Gradually figures, chiefly the heads of men and animals, were employed for ornamentation. The term bracket is sometimes used for a C., but bracket is better applied as synonymous with cantilever.

Corbet, Richard (1582-1635), a poet and bishop, was the son of a gardener at Ewell, Surrey, and was educated at Westminster School and at Christ Church, Oxford, of which he became dean. He was afterwards appointed chaplain to James I., Bishop of Oxford, and Bishop of Norwich respectively. His only published writings

ing (New York), George Washington Masonic National Memorial (Alexandria, Va.), Bush House (London, England), also King's County Hospital Buildings, Holy Innocents' Church, and St. Francis Xavier's School—all of Brooklyn.

Corbett, James John, b. San Francisco, California, U.S.A., 1866. He was educated in the public schools of his native city and began work as a book-keeper in a local bank. An ardent athlete, his friends encouraged him to take up boxing. After winning in some amateur matches, he became a professional in 1884. In 1899 he knocked out the veteran Joe Choynski in 28 rounds. He defeated Jake Kilrain in 1890 and fought a drawn battle with the famous negro boxer Peter Jackson. By this time he had earned the right to a contest with J. L. Sullivan, who for many years had been world's champion heavy-weight pugilist. So firmly was Sullivan established in the

esteem of the American public that it was not thought that Corbett had any chance of winning. However, he defeated Sullivan in 1892 in New Orleans. Owing to his education, which was superior to that of the ordinary American boxer, to his love of fine clothes and to his former bank clerkship, he soon got the sobriquet 'Gentleman Jim.' He successfully defended his title against Charlie Mitchell, the British heavy-weight champion, but was knocked out by Bob Fitzsimmons at Carson, Nevada, 1897, by the blow which became famous as the 'solar plexus punch.' His last fight was in 1903, when he was knocked out by Jim Jeffries. C. then went on the vaudeville stage and was a big success. Wrote his reminiscences under the title *The Roar of the Crowd*, 1925, and has also written amusing magazine articles about his experiences.

Corbett, Sir Julian Stafford (1854-1922), Director of the Historical Section, Committee of Imperial Defence; *b.* 1854; second son of Charles J. Corbett, F.R.A.S., Imber Court, Surrey. Educ. at Marlborough; and at Trinity Coll., Cambridge: 1st class Law Tripos, 1876; called to the Bar and practised for a few years. Published four romances, also monographs on *Monk* (1889) and *Drake* (1890) for 'Eng. Men of Action.' With Dongola expedition, 1896, as correspondent of *Pall Mall Gazette*. Ford lecturer in history to Naval War College. Before the Great War he published a number of works on naval history; and, after it, contributed *Naval Operations* to its *Official History*, 1920.

Corbetta, a com. 23 m. N.N.W. of Pavia, in the prov. of Milan, Lombardy, Italy. Pop. 7525.

Corbie, a tn. on the Somme, in the dept. of Somme, France, and in the arron. of Amiens. Once it was famous for its Benedictine abbey; now it is visited for its mineral waters, and has textile industries. Pop. less than 4640.

Corbie Steps, or Crow Steps, a Scottish expression derived, no doubt, from 'corbel,' the similarity of this word to 'corbie,' Scottish for 'crow,' accounting for the alternative name. From the fourteenth to the seventeenth century gables in Scotland were invariably finished by stepped slopes, called C. S. It was customary to arrange steps for the passage from one side of the roof to the other, hence arose the fashion of cutting the parapet alongside into steps.

Corbridge, a parish on the Tyne in Northumberland, England. It is on the L.N.E. Railway, and lies 3½ m. to the E. of Hexham. In the vicinity are coal mines, but the

interest of the place to-day is mainly historic. The Rom. station known as Corstopitum, which served as an important basis for the military operations of Antoninus Pius, lay half a mile to the W. Ruins of two great granaries facing what must have been a broad highway were excavated in 1907. These had lain embedded in the earth since the fifth century when the site was abandoned. Pop. 2415.

Corbulo, Gnaeus Domitius, a Rom. general, lived during the reigns of Claudius and Nero. His popularity with the soldiers and notable conquests aroused first the envy of Claudius, who recalled him in the midst of his victories in Germany, and afterwards of Nero. From 54 A.D. he waged successful warfare against the Parthians, who were continually crossing the E. frontiers, till Nero in 67 sent for him to Greece. C. fell on his sword rather than give himself up to the emperor.

Coreyra, the anct. name of Corfu (*q.v.*).

Cord, derived from the Gk. through the Latin *chorda*, the string of a musical instrument, now denotes a piece of thick string composed of several woven or twisted strands. In the seventeenth century in England, and in America, a cord of wood was cut timber, usually for fuel, measuring 8 ft. long by 4 ft. broad, and 4 ft. high.

Corday d'Armans, Marie Anne Charlotte, commonly called Charlotte Corday (1768-93), *b.* at St. Saurin, near Seez in Normandy, was of noble birth, and among her ancestors was Pierre Corneille. At first a strong supporter of the French Revolution, she afterwards thought that it had gone too far in its atrocities, and on the overthrow and proscription of the Girondists (May 1793) she determined to support the opposing side. She chose Marat as her first victim, and, after two unsuccessful attempts, she gained admission to him under pretence of communicating news of the Girondists at Caen, and stabbed him in his bath, where he died. She was arrested, brought before the revolutionary tribunal, and condemned to be guillotined. Her execution took place on July 17, 1793. See Lamartine's *Histoires des Girondins*; her *Life* by Vatel, 1872, and by Focke, 1895; and Austin Dobson's *Four Frenchwomen*, 1890.

Cordeliers, a branch of the Franciscan or Gray Friars, so named from wearing a notted cord for a girdle. See Chaucer's *Romant of the Rose* (line 7461). The name was also applied to the members of a club founded in Paris in 1790 during the

French Revolution, the chief leaders of which were Marat, Danton, Hébert and Camille Desmoulins. It fell in importance after the execution of Danton, and was ordered to be discontinued by the Convention of 1795.

Cordall, a tn. in Georgia, U.S.A., ships pea nuts. Pop. 6538.

Cordials are weak solutions of alcohol, supposed to have considerable medicinal value. Usually they are sweetened with syrups or cane sugar and mixed with fruit essences, or plant or essential oils to give a flavour. Caramel or burnt sugar is often used to colour cordials.

Cordier, Henry Joseph Charles (1827-1905), a Fr. sculptor, was a pupil of Fauginet et Rude. From the first he showed an alert interest in anthropology. The Jardin des Plantes possesses his twelve busts of Algerians. Other of his notable works are statues of Arabian women and fellahs in onyx and bronze, polychromatic busts of a negro of Timbuctoo and an African Venus, and a statue of a young sculptor (Gk.) of the island of Tinos.

Cordier, or Corderius, Mathurin (c. 1480-1564), a Fr. schoolmaster, was for some time a teacher at the college of Navarre, Paris, where Calvin was his pupil, but taught for most of his life at Geneva, having embraced Calvin's religious views. He had a special gift for instructing children, and his graduated dialogues for beginners in Latin, entitled *Colloquiorum scholasticorum libri quatuor*, were still used in the school-room three centuries after his death. In his *De corrupti sermonis emendatione* he attacked what was called the *Latin de cuisine*, whilst a Latin grammar and *Miroir de la jeunesse pour la former à bonnes mœurs et à civilité de vie* were both written for young people.

Cordilleras (Sp. 'chains'), the name applied to the mountain systems of N., S., and Central America; the C. of N. America being the Rocky Mts., and those of S. America the Andes.

Cordite, the smokeless explosive used in the British army. It was introduced by Sir Frederick Abel; Nobel, the Swedish chemist, claimed that his patents covered the substance, but the claim was disallowed after a series of lawsuits in 1894-95. The explosive as prepared in 1891 consisted of 58 per cent. nitroglycerine, 37 per cent. gun-cotton, and 5 per cent. mineral jelly or vaseline. This substance is now known as Mark I., but has since been superseded by Cordite M.D., which is composed of 30 per cent. nitroglycerine, 65 per cent. gun-cotton, and 5 per cent. mineral jelly. C. has good explosive

properties, but is particularly safe to handle. If ignited in the open air, it burns slowly; it may be subjected to considerable shock without detonating, e.g. bullets fired through packages of C. fail to explode it. It is waterproof and is unaffected by ordinary climatic changes; it is very stable and remains unaltered for a considerable length of time, even when kept in contact with metallic envelopes. These properties make it a valuable propellant for war-like purposes, as there are few dangers connected with transport, storage and manipulation. Cordite M.D. explodes with more regular pressure and with generation of gases of lower temperature than Mark I., thus causing less deterioration to rifling, etc.

Cordoba, in Spain, see CORDOVA.

Cordoba: (1) A central prov. of the Argentine Republic, having an acreage of 62,160 sq. miles, consisting mostly of pampa land. In the W. the Sierras de C. and de Pocho rise sometimes to over 6600 ft., but the rest of the state is a plateau sloping down toward the E. Few of the five rivers, Primero, Segundo, etc. (First, Second, etc.), which flow from the W., succeed in reaching the eastern limits. The principal products are wheat, maize, wood, linseed, hay, flour, cattle, hides and marble. Pop. 950,000. (2) Cap. of the above prov. and the third largest city of the Argentine Rep., with 160,000 people. Some 435 m. N.W. of Buenos Aires. Founded in 1583, its early growth was due to the driving of cattle from the A. pastures to the mining centres of the Andes. The local industries include the manufacture of shoes, soap, candles, carriages, and furniture. There are also flour mills, foundries, marble works, tanneries and paper mills. C. is a centre of culture. There is an old and important university, and the national observatory is one of several unusually fine buildings, including the National Academy of Sciences and the National Meteorological Bureau, there is a cathedral and many grey churches and anct. houses. (3) A tn., 3045 ft. above the sea, in a fertile valley with coffee plantations, 60 m. W.S.W. of Vera Cruz, in Mexico. Pop. 14,740.

Cordon, a line of military posts or sentries placed around a district or town to prevent any communication between it and the country beyond. When it is used to prevent a disease from spreading it is called a 'Cordon Sanitaire.'

Cordon Bleu, originally referred to the blue ribbon of the knight's grand cross of the order of the Holy Spirit, the first order of the Bourbon kings.

To-day the term is humorously applied to good chefs. Properly it refers only to women cooks.

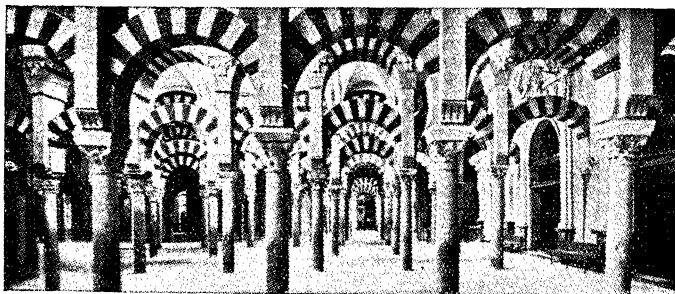
Cordonnier, Émilien-Louis-Victor, Fr. general; b. at Surgy (Nièvre), 1858. Left St. Cyr, 1879. Gen. of brigade, 1913. Led 3rd Division at Battle of Marne; severely wounded, Sept. 1914. As General of Division in 1915, went to Macedonia. Invalided 1916. Wrote *Les Japonais en Manchourie*, 1911; *Une Brigade au feu: Potins de Guerre*, 1921.

Cordova: (1) a prov. of Andalusia, Spain, which from 756 A.D. has been an independent Moorish kingdom. The plains produce fruit, wine, olives, grain; the slopes of the Sierra Morena pasture cattle and horses. Lead, copper and coal are mined. The area is 5250 sq. m., the pop. 554,433. (2) C. cap. of the above

Corduroy, a cotton material made like a ribbed velvet. A coarse heavy make is used for workmen's suits, and a finer texture is largely used as a dress material for ladies.

Corduroy Road, a term used to designate a road which is formed of tree-trunks or logs laid side by side in a transverse direction. Such roads are used chiefly in America, when a marshy piece of land has to be negotiated as a more or less temporary expedient. The origin of the term is the similarity of design of such a road to a piece of corduroy, in which the 'ribs' run in similar fashion.

Cordwainer originally, in Spanish, Italian, and old Fr., signified a maker of, or dealer in Cordovan leather, and thence in later Fr., a shoemaker. It is now obsolete, but



INTERIOR OF THE MOSQUE, CORDOVA

prov., on the Guadalquivir, is the city of the wonderful Moorish mosque built from 785 to 990, and taken from them by the Spaniards at the point of the sword in 1236. It embodied all the styles of Moorish architecture in one noble composition (Calvert). The pulpit, composed of 35,000 pieces of wood, was seven years in the making by eight artists. It was 742 ft. in length, and 472 ft. in width, and had forty-eight watch-towers; it is now the largest of Christian temples next to St. Peter's. The Moorish bridge and water-mills, ruined walls, etc., still give an Oriental air to the confused mass of small white houses which was so associated with Cordovan leather as to give its name to cordwainer (*q.v.*), the ancient Eng. word for shoemaker. Pop. 73,710. (3) Cordova, a tn. in Alaska, U.S.A., the terminus of the Copper River and N.W. Railway, and the outlet for the Kennicott mines. Pop. (1910) 1152; (1920) 955.

survives as the name of the trade-guild or company of shoemakers; it is also used by trades unions to include all branches of the trade.

Corea, see KOREA.

Coregonus, or Whitefish, a genus of fishes in the Salmonidae, and usually to be found represented in lakes. Their scales are large and silvery, and the teeth are either minute or absent. *C. oxyrhynchus*, the houting, is a native of N. Europe; *C. chupeiodes*, the schelly, powan, or gwyniad, is to be found in the Eng. lakes, in Loch Lomond, and in lakes of Wales.

Corella, a tn. of Spain in the prov. of Navarre, situated 49 m. S.S.W. of Pamplona. Pop. 7000.

Corelli, Arcangelo (1653-1713), a violinist and musical composer, b. at Fusignano. Went to Germany in 1680, but returned to Rome in 1682, where he met Handel. His greatest work is the *Concerti Grossi*, or Twelve Concertos, which, however, was only published shortly before his death.

Corelli, Marie (1864-1924), Eng.

novelist, was the daughter of an Italian father and a Scottish mother. She was adopted in infancy by the journalist Charles Mackay; at his death his son Eric was constituted her guardian, and he sent her to a Fr. convent to be educated. Her education was framed with a view to a musical career, but on her return home she wrote in 1886 a romantic story entitled *The Romance of Two Worlds*. This was so successful that the idea of a musical career was abandoned for the writing of novels, all of which were immensely popular. No writer of her day (unless it was her 'sparring partner,' Hall Caine) had a larger number of readers. The critics invariably fell foul of her work, and for many years no copies of her novels were sent for review. The reason of her success lay not in the excellence of her work, but in the fact that it met so exactly the popular taste. Her novels had a distinct flavour of plot; and, although she usually (perhaps always) failed to display the slightest comprehension of the affairs of this life, she wrote about everything with a cocksureness and an emphasis that were enough to convince her admirers that she had probed the subject to the bottom. Her chief novels are: *Vendetta*, 1886; *Thelma*, 1887; *Ardath*, 1889; *Soul of Liliith*, 1892; *Barabbas*, 1893; *Sorrows of Satan*, 1895; *Mighty Atom*, 1896; *Master Christian*, 1900; *Temporal Power*, 1902. She settled at Stratford-on-Avon.

Corentyne, or Corentyn, a river of S. America, forming the frontier of British and Dutch Guiana. It rises in the Acarai Mountains, and has a length of 450 m. The C. is navigable for some distance from the mouth, but great cataracts in about 4° 20' N. latitude and several others higher up interrupt the navigation.

Corenzio, Belisario (1558-1643), a Gk. artist, b. in the prov. of Achala. Became a pupil of Tintoretto at Venice. There he painted pictures in fresco for the churches and was more successful in his frescoes than in oil paintings.

Coreopsis (Gk. *κόρις*, a bug; *opsis*, resemblance), a genus of plants of the order Compositæ. It takes its name from the fact that the seeds are generally awned and slightly winged and look remarkably like an insect. There are many species found in the U.S.A., Mexico, the Sandwich Islands, and S. Africa. The flowers are cultivated for decoration, for they are very gorgeous and beautiful.

Co-respondent, denotes either generally a co-defendant with another or other parties to an appeal; or

separately in the divorce court, any person cited in a suit for divorce or judicial separation, and charged with adultery with the spouse (respondent) against whom the petition is brought.

Corf, the name formerly given in mining to a large and strong basket used in carrying ore, or coal, from the working-place to the surface. 'Tubs' made of wood and iron are now used for this purpose; they are still sometimes termed 'corves.' In fishing, a corf is the name given to a cage in which fish, particularly crabs, lobsters, etc., are kept alive in the water. Such corves are made from a large basket, or a box with holes in it.

Corfe Castle, a vil. and par. in Dorsetshire, England, situated in the E. division of the Isle of Purbeck, 6½ m. S.W. by S. of Poole, and 2½ m. E.S.E. of Dorchester, on the Southern Railway. C. C. itself is situated on a high ridge, and is



[Southern Railway

CORFE CASTLE

separated from the village by a ravine over which a bridge has been built. The castle dates from the eleventh century, though for a long time ascribed to Edgar; it was here on the site of the castle that King Edward the Martyr was murdered in 978 at the instance of his stepmother Elfrida. Many times the castle has been besieged; it was captured by the Earl of Devonshire in Stephen's reign, and was twice besieged by the forces of the parliament during the Civil War, being demolished after its capture in 1645. The principal

trade of the village is in fireclay and stone. Pop. 1402.

Corfu: (1) The largest of the Ionian Is., and of which the anct. name was *Corcyra*. About 700 B.C. it was colonised by the Corinthians, and soon established an extensive commerce. Rivalry soon broke out between *Corcyra* and *Corinth*, and in 664 B.C. a battle was fought—the most anct. sea-fight on record—between the two cities. In 433 B.C. it allied with Athens and so caused the Peloponnesian War. Civil dissensions caused a decline in its power, and it was taken by the Romans in 229 B.C. In the Middle Ages it was taken by the Venetians, who held it until 1797, when it was ceded to France. Russia and Turkey captured it in 1799, but gave it back to France in 1807. It was in the hands of the British from 1815 to 1863, when it was incorporated with Greece. The surface of the island is mountainous: the climate in summer is hot and dry, and in the winter rainy. C., the first sight of which delights and surprises the traveller, has an area of 227 sq. m. and a pop. of about 130,000. The olive trees, planted by the Venetians, cover its rocky hills and valleys with a mantle of green, and fill its storehouses with oil. On all sides there is luxurious vegetation, pears, figs, pomegranates and flowers. The best Gk. musicians come from C. The women balance extraordinary weights upon their heads gracefully. The excellent roads are a relic of the Eng. occupation. During the Great War C. played a useful part as a resting spot for the Serbian army, after its terrible retreat through Albania, and to-day more than 25,000 Serbians lie in C., the victims of typhus and cholera. (2) C., the chief tn. of the is., is famous for its harbour; the tn. has little other attraction besides a few picturesque streets. The Gk. postage stamps are usually printed here, and paper is made. On Aug. 27, 1923, the Italian delegate on the Albanian Boundary Commission was found murdered on Gk. territory, and the Italian Dictator sent a fleet to C. which bombarded the dilapidated Venetian forts, and killed sixteen refugees and orphans. The British Police Mission established a Police School at C., and up to the end of 1926, 2993 cadets had been trained there. C. being somewhat isolated, has a local newspaper press. Italian, which was once universal, is no longer generally spoken. C. has no railway, and some Corfuites have never seen a train. The pop. is 38,600.

Cori (formerly *Cora*), a tn. of Italy in the prov. of Rome, situated at the

foot of *Monts Lepini*, 23 m. S. by E. of *Tivoli*. It was formerly a town of *Volsci*, and important ruins of temples, etc., have been discovered, and remains of walls. Pop. 7400.

Coria del Rio, a tn. of Spain, situated on the *Guadalquivir R.*, 6 m. S.S.W. of *Seville*. It is noted for the manufacture of jars for oil, and for almonds. Pop. 7177.

Coriander, or *Coriandrum sativum*, a species of *Umbelliferae* which flourishes in Asia, America, and S. Europe. The plant is an annual, with a disagreeable smell, but the globose fruit for which it is cultivated emits a pleasant odour when dried. On account of this fact it is used in confectionery as an aromatic flavouring, and it is also employed in the manufacture of liquors; in medicine it is used as a carminative.

Corigliano Calabro, a tn. of Italy in the prov. of *Cosenza*, 6 m. W.N.W. of *Rossano*. It is gloomy and badly built town, but has a fine castle. Pop. (including commune) 16,190.

Corinaldo, a com. and tn. of Italy, in the prov. of *Ancona*, 20 m. S.S.E. of *Pesaro*. Pop. 6550.

Coringa, a seaport of British India in the *Madras Presidency*, 8 m. S. of *Cocanada* and 87 m. E.N.E. of *Masulipatam*. It was formerly of great importance, but is now much decayed owing to the extension of the delta of the *Godavari*. Pop. 4000.

Corinna, a Gk. lyric poetess, b. at *Tanagra* in *Boeotia*, and lived about 500 B.C. She is said to have been a disciple of *Myrtis*, and to have instructed *Pindar* in his youth, but afterwards contended with him in poetical contests. Alexandrian critics praise her work, but only a few fragments are extant, which are collected in *Th. Bergk's Poetæ Lyrici Græci*.

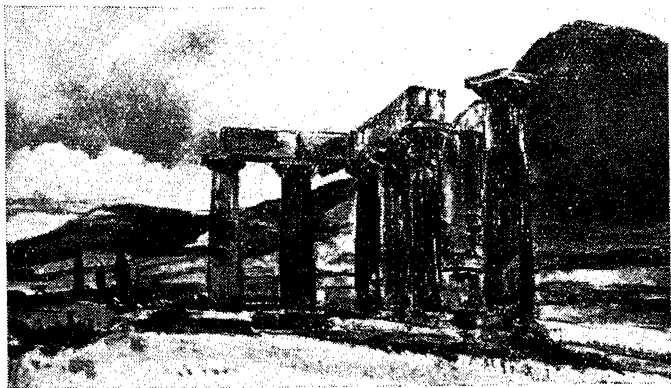
Corinth, an anct. city of Greece, lying between the *Gulf of C.* on the W. and the *Gulf of Ægina* on the E., 48 m. from Athens. It is situated on the S.W. end of the rocky isthmus of C., which connects the *Peloponnesus* with the mainland. Its citadel, the *Acrocorinthus*, was built on the N. slope of a steep mountain (1886 ft. high), with the famous fountain of *Pirene* near by. The city had three harbours—*Schoenus* and *Cenchreæ* on the *Saronic Gulf*, and *Lechæum* at its opposite end in the *Gulf of C.* C. enjoyed splendid advantages from its situation, and became the chief trading centre in anct. times of E. and W. traffic. Its chief exports were the productions of ceramic art, and the inhabitants also excelled in weaving and in metal-work. C. was supposed to have been founded by *Æolian Sisyphus* about 1350 B.C., but did not

come into prominence until after the Dorian conquest. It was ruled by an oligarchy from 748 till 657, when Cypellus became tyrant. Under his rule and that of his son, Periander, the city increased in wealth and power, but in 582 the old constitution was restored. C. joined the Lacedæmonian league, incited the Peloponnesian War (431) upon Athens, and on the fall of that city, united with it and Thebes against Sparta in the Corinthian War (395-387). It was occupied by the Macedonians until 196, and joined the Achæan league, until it was sacked and almost destroyed by the Romans under L. Mummius in 146. Its treasures of art were carried off to Rome, and for

most celebrated Corinthians are Diogenes, the cynic philosopher; Cleanthes and Cleophrantus, painters; and the statesmen Periander, Pleidon, and Timoleon. At its height C. had a pop. of 300,000. It is now 5350

Corinth, the co. seat of Alcorn co., Mississippi, U.S.A., with foundries and machine shops. Owing to its position it played an important part in the W. campaigns of the Civil War. Pop. 6220.

Corinth, Gulf of (or Lepanto), separates the Morea on the S. from Hellas on the N. Numerous small rivers run into the gulf, which communicates with the Gulf of Patras by the Strait of Lepanto. Earthquakes are very frequent, the seat of shock



CORINTH

(The ruins of the Temple to Apollo, with Acrocorinthus behind)

many years the city lay in ruins, until Julius Cæsar rebuilt it in 46. During the Middle Ages it passed into the hands of the Venetians, from whom it was captured by Mohammed II. in 1458 and again 1715. It was destroyed by an earthquake in 1858, and the new city was built 3 m. N.E. of the old site. At the time of its prosperity, C. had numerous colonies, including Syracuse, Apollonia, Corcyra, etc. The town was notorious for its luxury and licentiousness, and was beautifully laid out with gardens and fountains, statues and theatres. The anct. temple to Apollo, the theatre, the foundations of the Acrocorinthus, the Agora, and other important sites have been identified, and archaeological excavations have been undertaken by the School of Classical Studies at Athens. The worship of Aphrodite prevailed in the city. The

being generally between Patras and Poros. The gulf has a length of 75 m. and an average breadth of 15 m.

Corinth, Isthmus of, a neck of land, situated in Greece, which unites the Morea to Attica, between the gulfs of Corinth and Ægina. Many remains of great antiquity have been discovered, including traces of the temple of Poseidon, and the Isthmian wall. A ship canal through the isthmus was begun in March 1882 and completed in Aug. 1893. The canal is 37 m. in length, and has a width at bottom of 69 ft., at the surface of 100 ft. and a minimum depth of 26½ ft. The new towns of Isthmia and Poseidona are situated at the S.W. and N.E. extremities of the canal respectively.

Corinthians, First and Second Epistles to the. These two Epistles included in the N.T. were written by

St. Paul to the members of the Christian Church at Corinth, which he had established there during his stay of a year and a half. From internal evidence it is ascertained that the First Epistle was written in 56 or 57 A.D. from Ephesus, and the Second Epistle was written from Macedonia in 57 or 58 A.D. There seem to have been two main reasons which induced Paul to write the First Epistle—information which he had received from members of the 'house of Chloe' (1 Cor. i. 11) about the condition of the Christian Church in Corinth, and in answer to certain questions which he had received from the Corinthian Church by Stephanas, Fortunatus, and Achaicus. From information received Paul learned of the different religious factions of the Christians and wrongs and abuses which were prevalent at that time in Corinth; and he maintained that the Church was the true state, and would be able to settle all disputes, both theological and civil, and condemned the factions and abuses existing in the Church. He also discusses and answers the questions sent to him from Corinth—questions dealing with marriage and celibacy, idolatry, the support of the ministry of the gospel, public worship, institutions such as the Lord's Supper, spiritual gifts, and the resurrection. The Second Epistle is closely related to the first, and Paul determined to write it owing to the good effect on the Corinthians of his First Epistle. St. Paul makes his salutation, mentions the Judaizers, and then gives a graphic account of his ministry as an apostle, its methods and its motives. He then describes how he waited for the coming of Titus from Corinth, and his joy at his arrival and the tidings which he brought; he exhorts the Christians to contribute to the collections for the saints in Jerusalem; and describes how the Judaizers assailed him when he was an apostle. Although their integrity has been questioned, it is beyond doubt that both Epistles are authentic, and they admirably display the character of their author. For commentaries on the two Epistles, see those of Holsten (1880), Meyer (1881), Beet (1885), Lias (1886), Godet (1887), and Schmiedel (1892).

Corinto, a maritime town in the dept. of Chinandega, Nicaragua, Central America, 19 m. W.N.W. of Leon. It is the chief seaport of Nicaragua on the Pacific. The principal export is coffee. Pop. 3500.

Corio, a com. and tn. of Italy in the prov. of, and 19 m. N.N.W. of the city of Turin. Pop. 5080.

Coriolano, the name of three engravers:

Coriolano, Cristoforo (d. 1600), a native of Nürnberg. He cut the very clever portraits of the second edition of Vasari, published at Florence in 1568.

Coriolano, Giovanni Battista (c. 1590–1649), is thought to be the son of Cristoforo, but probably was his grandson. His cuts in wood are few, his work consisting chiefly of engravings and etchings on copper.

Coriolano, Bartolomeo (c. 1599–1676), also said to be the son of Cristoforo. He was b. at Bologna, and studied under Caracci. He executed some very effective prints in chiaroscuro. His principal work is 'The Fall of the Giants,' after Guido (1638). He was granted a pension by Pope Urban VIII.

Coriolanus, Caius or Cnæus Marcius, the hero of an early Rom. legend. His original name was Caius or Cnæus Marcius, and he received his surname, 'Coriolanus,' owing to his capture of Corioli from the Volscians. Banished from Rome by the commons in 491 B.C., he fled to the Volscians, whose king, Attius Tullius, made him general of their army. He advanced against the Romans, and was only induced to lead back his army by the approach of Veturia, his mother, Volumnia, his wife, and his two children. He returned to the Volscians, with whom he lived until his death. Some traditions state that the Volscians killed him on his return. The story is told in Shakespeare's *Coriolanus*.

Corisco Bay, a bay in W. Africa, in the Bight of Biafra, extending from Cape Esteiras on the S. to Cape St. John on the N.

Corisco Island, a small island in the above bay, belonging to Spain.

Cork, a co. in the Irish Free State, in the prov. of Munster. It is the largest county in Ireland, covering an area of about 2890 sq. m. The coast is bold and rocky, and is broken up by the bays of Bantry, Dunmanus, and Roaring Water. There are several headlands on the S. coast jutting out into the Atlantic. The surface is undulating, there being low ridges with valleys to correspond running E. and W., but in the W. it is much more mountainous. The highest portion of the county is in the Boggeragh Mts. in the N.W., and which reach to a height of 2118 ft. To the S. are the Shehy Mts., and the Cahane range is to the N. The principal rivers are the Blackwater, the Lee, and the Bandon, flowing from W. to E. The Blackwater rises in the county of Limerick, and the Lee starts in the Gouanbarra Lough—a very

picturesque spot, and the Bandon has its source in Cullinagh Lough. There are no lakes of any considerable size, but the largest is Lough Allua, which is an expansion of the R. Lee. The scenery in the W. of the county is bold and rugged, but in the centre there are quiet green valleys, and some parts are well wooded. So far as climate is concerned, the prevailing winds are W. and S.W., thus making the atmosphere moist and warm. The annual rainfall in the city of C. is 40 in., but it is somewhat higher over the whole county. The annual mean temp. is 52° F., and the snowfall for the year is generally very light, and when it falls it never settles for long. The chief sea-bathing places are Blackrock, Passage, Monkstown, and some villages near the city of C. Bantry, Glengariff, and Youghal are much visited by tourists in the summer months. There is not much variety in the soil, there being calcareous limestones, mellow loams, grey and red sandstone, peat, and clay. The population is most dense near the sea, and along the principal lines of communication. Oats, potatoes, and turnips are the chief crops grown, and as the pasture land is extending so are cattle, sheep, and poultry on the increase. There is a good deal of deep-sea fishing done, and the salmon and trout fishing is good in the rivers. C. is one of the counties said to have been founded by King John. Its boundaries were not always as far-reaching as they are at present. They now embrace a district which was once a separate county, namely Desmond. In 1598 there were two sheriffs in the county of C., one especially for Desmond. About this date large tracts of land were given to settlers, and Sir Walter Raleigh and Edmund Spenser, the poet, received 40,000 ac. and 3028 ac. respectively. Of the castles in C., Blarney castle is the most famous, partly because of the old legend attached to the Blarney stone, which is under the parapet at the top of the tower. Kilconan Castle, near Doneraile, is the place where Spenser wrote his *Faerie Queene*. Pop. 392,104.

The city of C. is a seaport situated at the head of the splendid inlet known as C. Harbour, and also on the R. Lee. Up to the middle of the nineteenth century it was reckoned as second only to Dublin, but now Belfast surpasses it in commercial importance. The nucleus of the city is built on an island formed by two arms of the R. Lee, and known as the North and South Channels. This part of C. includes all the principal thoroughfares, which contrast very strongly with the narrow and unclean

streets lying in the district around the island part of the city. Outside the city are a public park and racecourse, and also a fashionable marine parade. Electric trams connect the city with the suburbs, and cross both the St. Patrick's and Parnell bridges. Fine quays of cut limestone, altogether 4 m. in length, extend all along both branches of the Lee. The principal church is the Protestant cathedral, founded in 1865. It is dedicated to St. Finbar, who was the founder of the original cathedral in the seventh century. The Rom. Catholic cathedral, on the N. side of the city, is also dedicated to St. Finbar. The custom house occupies a fine position overlooking the river, but the usual business and public buildings are on the island. The original site of C. is said to have been in the neighbourhood of the Protestant cathedral. During the ninth century the town was many times ravaged by the Northmen, and according to some records it was burnt down in 821, and also in 1012. The harbour is the most important one on the S. coast of Ireland; it is studded with islands, its shores are well wooded, and is altogether most picturesque. It is due to the splendid dredging arrangements that ships drawing 20 ft. of water can reach the quays on all tides. Trade is carried on mainly with Bristol and some of the South Wales ports. The imports are chiefly wheat and maize, and the exports cattle, provisions, butter, and fish. The chief local industries are distilling, ship-building, iron founding, and bacon curing. There were riots in and near the city in 1919-20, and the City Hall and Carnegie Hall were burnt. The duties of the Corporation have been transferred to commissioners. Pop. mun. bor. 76,673; parl. bor. 102,435. C. is governed by a mayor, aldermen, and councillors, and it returns two members to Parliament. Pop. 76,673.

Cork, the tissue or layer of the bark of the C. oak (*Quercus suber*) which grows in Spain, Portugal, and some districts of Europe bordering the Mediterranean. A tree first yields a supply when it is about twenty years old, and supplies are obtained about every ten years. The first production is of little value, but each successive supply increases in value. The C. is stripped from the tree by means of incisions made in longitudinal and transverse directions by a curved knife with a handle at each end. The pieces thus detached are soaked in water, scraped, washed, pressed flat, and dried. They are then placed over a coal fire which conceals blemishes and blackens and makes smooth the surface. The elasticity of C. makes it

useful for stopping bottles and casks; its lightness for life-belts, artificial legs, and the floats of nets; and its impermeability to water for the soles of shoes. The uses of C. were known to the ancients.—Pliny mentions them. Plutarch says that Pontius Cominius swam the Tiber by the help of pieces of C., and the ancients. Egyptians made coffins of it. The use of C., however, for stopping glass bottles was not known until the fifteenth century. 'Spanish Black' is made by burning the parings of C., and C. waste is employed in the manufacture of linoleum.

Cork, Earls of, see BOYLE, RICHARD (1566-1643); BOYLE, JOHN (1706-62); BOYLE, CHARLES (1676-1731).

Corleone, a tn. of Sicily, situated 21 m. to the S. of Palermo on a hill near the source of the Belici R. Pop. (including commune) 19,690.

Cormac MacArt, or **Cormac na Cuinn**, King of Ireland from 218-254, was grandson of Conn Cead Cathach (Conn of the Hundred Fights). He reigned in great splendour, and was a great patron of art and learning. Schools of military science, law, and literature are said to have been founded by him at Tara in co. Meath. Some of his sayings are preserved in the *Book of Adill*.

Cormac MacCulinan (901-908 A.D.), King of Munster in Ireland, a descendant of Angus, was b. in 836. He reunited the offices of king and bishop, being bishop of Cashel. During his reign the country was troubled by the invasions of the Danes, and it was in resisting these that Cormac fell at the battle of Moy Albe. He wrote a chronicle in Irish verse, *The Psalter of Cashel*, and an etymological glossary of the Irish language, called *The Glossary of Cormac*.

Cormenin, Louis Marie de Lahaye, Vicomte de (1788-1868), a Fr. politician. He was appointed auditor to the Council of State; in 1814 he rallied to the legitimate cause, and after the Hundred Days was made Master of Requests at the Council of State at the restoration of the Bourbons. He wrote many pamphlets about this time, and his *Droit Administratif* (1821) for the first time collected the scattered fragments of administrative law and gave shape to them. Louis XVIII. made him a baron, and Charles X. a vicomte.

Cormons, a small tn. of Italy, situated 7 m. W. of Gorz. A statue to the Emperor Maximilian I. was erected here in 1903. Pop. 6440.

Cormontaigne, Louis de (1697-1752), a Fr. military engineer who served in the war of the Spanish Succession. He entered the engineers in 1715, and was put in charge of new

works—Forts Moselle and Bellecroix at Metz—which he had designed.

Cormorant, or *Phalacrocorax*, a large web-footed bird of the order Ciconiiformes, sub-order Steganopodes. The C. has a bright shiny head and neck, with bluish-black feathers, sprinkled with white. The general colour above is a greenish black, the throat white, and the bill and feet are dark grey. It is found in all parts of the world in coastal regions. This bird is notorious for its voracious appetite. It collects the food in a kind of pouch formed by the dilatable skin at the front of its throat. Cs. feed entirely on fish, which they catch by swimming and diving under the water, sometimes to a considerable depth. There are about twenty-five species.

Corn, a collective term which is applied to the seed of any cereal or farinaceous plant as a produce of agriculture. See WHEAT, RYE, OATS, RICE, MAIZE, etc.

Cornaceæ, an order of Dicotyledons, contains less than one hundred species of widely distributed shrubs and trees, usually with opposite and entire leaves. *Cornus* and *Nyssa* are two of the chief genera.

Cornaro, Caterina (1454-1510), a member of a celebrated Venetian family who married in 1468 Jacques de Lusignan, King of Cyprus. Her husband obtained the protection of the republic of Venice and a 'dot' of 100,000 ducats. Caterina did not join her husband until 1472, and the following year was left a widow; she governed for her son, Jacques III., until his death in 1475, when the senate decreed that she should abdicate in favour of the republic. This event did not take place until 1489, when it was made the occasion of a solemn ceremonial. Caterina retired to Venice, where she lived till her death; she had always a 'court' of poets and artists. She is buried in St. Saviour's, Venice. Her portrait has been painted by many artists, including Palma the Elder and Titian.

Cornaro, Luigi (1467-1566), a Venetian nobleman, whose weak constitution was further weakened by his intemperance in eating and drinking. When he was forty years of age he gave up these habits on the advice of his physicians and began gradually to diminish the quantity of his food, and proceeded to abstemiousness, and within a year his health was in a perfect condition, and his spirits greatly recovered. In his eighty-third year he wrote *The Advantages of a Temperate Life*, which was published in Italy in the vernacular tongue and in Latin. It was translated into most European languages, and was at one time a very popular

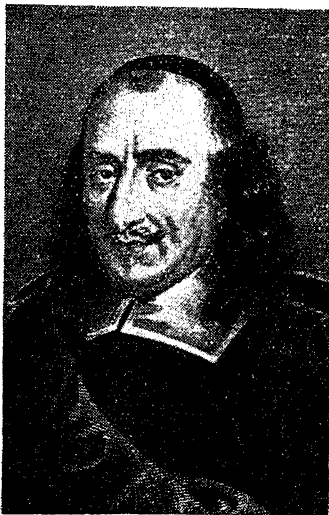
book. The best Eng. translation is that dated 1779. C. also wrote three other treatises on the same subject.

Corn-cockle, or *Lychnis Githago*, a pretty little species of the Caryophyllaceæ of the same genus as the campion and ragged robin, and like them is a common object in our fields.

Corncrake, Land-rail, or *Crex pratensis*, a species of Rallidæ which is well known in Britain on account of its unmelodious voice. The general colour of the bird is a dullish brown, the bill and tail are short, the legs long and powerful, and the toes have sharp claws. It has a wide geographical range which extends throughout the milder regions of all the continents, and it often spends the summer in Britain, haunting dry meadows. It can swim and run easily, but its flight is heavy.

Cornea, see EYE.

Corneille, Pierre (1606-84), the great Fr. tragic dramatist and the precursor of Molière in comedy, was b. at Rouen, and studied at his birthplace. His father was a legal



PIERRE CORNEILLE

official, and he was trained for the Bar. He tried for some time to obtain a practice at Rouen: he came to Paris in 1629. Here he produced the comedy of *Mélite*, which had already been played at Rouen. This was highly successful, largely on account

of the extreme ingenuity and complexity of the intrigue, and was followed by *Clitandre*, *La Veuve*, *La Galerie du Palais*, *La Suivante*, and *La Place Royale*. In 1663 C. was presented to Richelieu, who made him one of his 'five authors,' a group of dramatists whom the cardinal kept to carry out plays for which he himself supplied the plot. But he had not sufficiently the spirit of a follower to remain in this position, and he was soon dismissed. At this period C. became acquainted with Spanish literature, and this marks the starting point of his greatness. In 1635 appeared *Médée*, a tragedy which showed a marked improvement on his earlier work, but in 1636 the *Cid*, founded on a drama by Guilhem de Castro, took Paris by storm. While following the Spanish poet closely in detail, C. shows in his treatment the spirit which was to dominate Fr. tragedy. The piece is classically conceived, the hardness and savagery of the Spanish are removed, the action is simplified and concentrated, and the whole drama is changed from the external world to the internal world of the heart. The greater number of the Fr. critics, represented by the recently founded Academy, and instigated by Richelieu, condemned the play severely, on account of its incomplete observance of classical rule. However, all their force was unable to change the popular verdict. As Boileau says:

'En vain contre le *Cid* un ministre
se ligue
Tout Paris pour Chimène a les yeux
de Rodrigue';

and the phrase *beau comme le Cid* passed into the language. For three years C. remained in retirement, and when in 1639 he reappeared with *Horace* and *Cinna*, he had learned the lesson of strict submission to the 'unities.' Then came *Polyeucte* (1640), in which a Christian saint takes the place of hero, giving one of C.'s noblest tragedies; *La Mort de Pompée* (1643), *Rodogune* (1646), and *Héraclius* (1647). In 1643 had appeared *Le Menteur*, the comedy which first shows the style which Molière was to perfect. In 1647 C. was elected a member of the Academy, and produced *Andromède*, *Don Sanche d'Aragon*, and *Nicomède*, a kind of tragi-comedy where romantic heroism is mixed with irony, the whole forming the ground of much critical debate. In 1652 the failure of *Pertharite* drove C. from the stage, and he remained in retirement for six years, during which he commenced a translation of the *Imitatio Christi* into Fr. verse. In 1659 he returned

to the stage with *Edipe*, feeling confident that his powers were unimpaired. This was an illusion, and henceforth all his works show decline. Here and there are to be found scenes showing his old genius, but these are varied by much poor work. In 1674 his dramatic career ended with *Sertorius*. For ten years the poet remained silent, suffering from the death of his two sons and from domestic troubles, suffering still more from the sense of his vanished genius, and the knowledge that he was abandoned and despised by a new generation. At the age of seventy-eight he d. at Paris. C. is indeed the creator of the Fr. tragic drama. 'You know,' writes Racine in the eulogy of C. which he read before the Academy, 'in what a condition the stage was when he began to write. What disorder, what irregularity! . . . All the rules of art, and even those of decency and decorum, broken everywhere. In this infancy, or better in this chaos, of our dramatic poetry, C., after having for some time sought the right path and struggled against the bad taste of his day, inspired by extraordinary genius and helped by the study of the ancients, at last brought reason upon the stage, but reason, indeed, adorned with all the pomp, with all the ornaments which our language can provide. He easily gave both the credible and the marvellous, and left far behind him all the rivals there were.' While the drama of C. has not the freedom of the romantic type, it is by no means so strictly classical as that of Racine. C. accepted the unities, but only with difficulty. His great work is the creation of the 'drama of the soul.' His characters are exalted and superhuman, always masters of themselves and their emotions. Love he treats as a weakness, the will as the sole source of action. Stoicism and devotion to duty is the lesson he teaches. See Guizot's *Corneille et son Temps*, 1852; Sainte-Beuve's *Portraits Littéraires* t. 1er, 1844; and works on C. by Bouquet (1838), Lemaître (1888), Faguet (1896), and Lanson (1898).

Corneille, Thomas (1625-1709), the younger brother of Pierre C., twenty years his junior, b. at Rouen. He distinguished himself in early life by a comedy in Latin verse, which he composed while he was at the Jesuits' college. On the death of his brother, Pierre, Thomas took his place in the Académie, and contributed to the *Dictionnaire*, and afterwards became a member of the Academy of Inscriptions. Altogether he wrote forty-two tragedies and comedies. His earlier works are imitations of the Spanish

dramatists, the chief being: *Don Bertrand de Cigara*, 1650; *Le Geolier de soi-même*, 1655; and *Le Baron d'Albikrac*, 1668. Of his comedies the most well known are: *Les Dames vengées*, 1695 (in collaboration with Visé); *La Devineresse*, 1679; and an adaptation from Molière's *Festin de Pierre*, 1677. He was, however, made famous by his dramas: *Timocrate* 1656; *La Mort d'Annibal* 1669; *Ariane*, 1672; and *Le Comté d'Essex*, 1678.

Cornelia : (1) The daughter of Publius Scipio Africanus. She married Sempronius Gracchus, and was the mother of Tiberius and Caius Gracchus, the noted reformers. In her were exemplified the virtues of the best type of Rom. matron, and a statue was erected to her during her lifetime, with the inscription 'Cornelia mater Gracchorum.' See Valerius Maximus, 4, c. 4; Cicero in *Brut.* 58, and *De Claris Oratoribus*, 58, etc. (2) The daughter of Metellus Scipio, and married first Publius Crassus, and afterwards Pompey, by whose influence her father obtained the consulship. She was the helpless witness of her husband's murder by Achillas in the Bay of Alexandria, and it is said that he attributed all his ill-fortune to her unlucky influence.

Cornelia Gens (the family of the Corneli) was a famous Rom. family, who gave to Rome many exalted men in all branches of learning and art. The family had a patrician and a plebeian branch. The former branch had four great branches, those of Lentulus, Maluginensis, Rufinus, Scipio, each of which produced some great names. To the plebeian branch belonged Gallus, Tacitus the historian, Celsus the physician, Cornelius Nepos the biographer, and a great many others.

Cornelisz (1562-1638), a Dutch painter who received lessons in his youth from Pierre Aartzen and later from Probus and Coignet. C. also painted some historical pictures, but it was as a portrait painter that he was at his best.

Cornelisz, Lucas (1495-c. 1552), a Dutch subject and portrait painter, b. at Leyden. He received instruction in art from his father, Cornelius Cazelbrechtsen, who was the tutor of Lucas van Leyden. Owing to poverty he was forced to act as cook, but on going to England, about 1527, he was made royal painter by Henry VIII. Afterwards he was employed at the court of Ferrara in Italy from 1535.

Cornelius, the name of a centurion of the Italian cohort stationed at Cæsarea. In consequence of a special revelation, Peter received him

into the communion of the Christian Church directly by the rite of baptism without preliminary ceremonies such as circumcision, etc. This is generally regarded as being the beginning of the introduction of Gentiles into the Christian Church. Such a view is not quite justified by the fact of the case; for the introduction of the Ethiopian eunuch (Acts viii. 38) may have been prior to this, and C. could hardly be regarded as a Gentile, as he was a proselyte at the gate. There is, however, no doubt that the relaxation of the exclusiveness of the early church dates from this period. Legend tells us that C. founded a church at Casarea and became bishop of Scamandros. See Acts x.

Cornelius, Peter (1824-74), a Ger. author and musician. His opera entitled *The Barber of Bagdad* was produced at Weimar under the auspices of Liszt, who was his friend. The work was hissed off the stage, and Liszt resigned his post as conductor in consequence. C. went to Vienna and occupied himself in writing songs and poems. His second opera, *Le Cid*, was produced at Weimar in 1865.

Cornelius, Peter von (1783-1867), a celebrated Ger. painter, was b. at Düsseldorf, and early exhibited a taste for art. At the early age of nineteen he was commissioned to paint the cupola of the church of Reuss. He visited Rome, and illustrated Goethe's *Faust* in a manner worthy of the subject. In 1808 he went to Frankfurt, where he was well received, and in 1811 to Rome, where in conjunction with Veit, Overbeck, and others he founded practically a new school of Ger. art and revived fresco painting. In 1824 he was made director of the Academy of Munich; in 1841 he was made a member of the Academy of Berlin. He exhibited at Paris in 1855 four cartoons of the decorations of the Campo Santo, or Royal Mausoleum, of Berlin, which were widely admired. The frescoes in the Bartholdy Palace at Rome, representing the history of Joseph, are among his best works. Among his other works may be mentioned his great national picture, 'Cycle of Nibelungen,' his fresco illustrating Tasso's 'Jerusalem Delivered,' the frescoes in the Glyptothek of Munich, and his colossal 'Last Judgment' in the church of St. Louis at Munich. He d. at Berlin. C.'s art was essentially Ger., and he illustrated with remarkable felicity the masterpieces of Ger. poetry. He introduced into his work a subjective and metaphysical element which was liable to abuse. In his compositions the noteworthy features are the

grandeur of the conception and the sublimity of treatment rather than purely natural effects. Some of his frescoes are magnificently executed, in particular those of the Glyptothek in Munich. He had numerous famous pupils, among them Kaulbach, and some of the finest Ger. engravers, such as Amsler, Eberle, etc., selected his pictures to work on, and so enhanced their popularity.

Cornell, Ezra (1807-74), an American philanthropist, b. at Winchester Landing, New York. In his early life he practised as a mechanic in Ithaca, but later on he became very rich through organising telegraph companies, and also putting up telegraph lines. Cornell University was founded by him at Ithaca in the year 1868.

Cornell University, named after its founder, Ezra Cornell. It was established in 1865 in Ithaca, New York. It received large endowments of public lands from the state in return for giving to one student every year, from each of the 128 districts of New York state, a free education in agriculture and mechanics. Instruction is given in arts and sciences, architecture, engineering, economics, and agriculture. Now has over 5000 students and a faculty of over 1100 members. Its lands, buildings and equipment are valued at nearly £3,000,000, and it has a library of approximately 800,000 books. Receives large Federal grants and state appropriations, which have recently enabled its trustees to provide new residential halls for women students, and a plant industry building, besides devoting large sums to research work in chemistry, physics, and other subjects.

Corner, a word of American origin, in the first instance used to denote a market given to a particular class of stock, e.g. railway C. Now, however, it is used for a speculation in the Stock Exchange, in which a broker or brokers put up all the available stock of any particular commodity, such as wheat, with a view to forcing sellers of the stock or commodity to buy from those who formed the C. at their own price. A C. is generally brought off in a new security when by false dealing stock-jobbers are persuaded to sell speculatively shares which really are in the hands of the set of people who cornered the market.

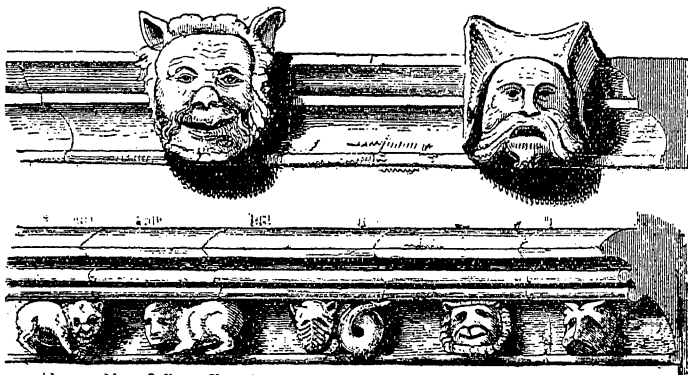
Corner, Julia (1798-1875), an Eng. authoress who wrote for children. Her best known works are: *The Children's Own Sunday Book*, 1850; *Culverley Rise*, 1861; *The Good Children*, 1854; and *The Miller's Maid*, 1867.

Cornet, the lowest rank of commissioned officer in the cavalry, corresponding to 'ensign' in the infantry. In 1871 Cs. were abolished and second lieutenants substituted. The work of a C. was to assist the captain in the duties connected with his troop.

Cornet (Fr. *cornet à piston*; It. *cornetto*), a treble wind instrument made of brass. It has a cupped mouthpiece, and a tube intermediate in size between a trumpet and a bugle, which give it a tone intermediate between these two instruments. Its open notes consist of C (below the treble stave), G, C, E, and above the stave C, B \flat , C, and in addition four higher notes D, E, F, and G, and a fundamental note, C (an octave below

Corney, Bolton Glanville (b. 1851), British surgeon. In 1877 colonial surgeon. He also held various positions in the Fiji Islands, and of his works the chief are: *On Epidemic Diseases in Polynesia*, 1884; *On Epidemic Cerebro-Spinal Meningitis; On Leprosy Stones*, 1896.

Corn-flour, the starchy ingredient of puddings, sauces, etc., obtained from finely ground maize or Indian corn. Also denotes flour made of rice or any other grain. The starchy granules, after separation from the germ and gluten, are carefully selected and purified. The germ, after its oil has been extracted, is used for cattle-food, as is also the residue of coarser constituents of the granules. See MAIZE.



Above: New College Chapel, 1306

Below: St. Mary's, Oxford, c. 1280

CORNICES

the stave), but these last five notes are seldom used. Three slides give the connecting notes and half-notes of the scale, the first slide lowering the sound by one tone, the second by a semitone, and the third by three semitones. Three valves or pistons which are depressed by the fingers allow the air to pass through these slides. The C. is used in orchestral and solo music and in military bands. Formerly the instrument was played in various pitches, but now it is only used in B \flat and A.

Corneto Tarquinia, a tn. and episcopal see in Italy, 63 m. from Rome. There is a fine cathedral there, also several old churches and palaces. Matches and pottery are manufactured there. It is noted for its Etruscan antiquities which were found at the adjacent Tarquinii. There still exists at Tarquinii a large Etruscan necropolis. Pop. 7960.

Cornflower, or **Bluebottle**, or *Centaurea cyanus*, a species of the order Compositae, is a weed commonly found in wheat-fields.

Cornhill, a thoroughfare in the city of London, running between the Poultry and Leadenhall Street. The name goes back to the beginning of the twelfth century. Stow suggests that it may be on the site of an ancient corn market, and so have received its name, but there is no trace of one having existed at that date. At the beginning of the fourteenth century there were a prison, a pair of stocks, and a pillory used for the punishment of bakers, millers, and other offenders. It is now a busy commercial thoroughfare with business houses, banks, and insurance offices. The poet Gray was born here.

Cornhill Magazine, a literary magazine, founded in 1860 by Thackeray, who was its first editor. To it he

contributed *Lovel the Widower, Philip*, and *The Roundabout Papers*. In it appeared George Eliot's *Romola*, Matthew Arnold's *Culture and Anarchy and Literature and Dogma*, and it has also numbered among its contributors Ruskin, Mrs. Browning, Tennyson, Fitzjames Stephen, Leslie Stephen, and James Payn. It was formerly much illustrated, and brought out the cartoons of Richard Doyle, and sketches by Leighton, Du Maurier, and Thackeray. Editors were Dutton Cook, Leslie Stephen, and later James Payn. The present editor is Leonard Huxley; the publisher John Murray, 50a Albemarle St., W. 1.

Cornice, in architecture, is the moulded projection which crowns or finishes the entablature, each order of architecture having its own peculiar C. The Grecian Doric C. is composed of few and bold parts, really of little more than a corona (the projecting and principal member in every C.) finished above by one or two simple mouldings, and having attached a series of shallow plates or tablets called 'mutules,' which are a distinctive feature of the Doric C. 'Dentils' are peculiar to the Ionic C., and 'modillions' to the Corinthian C. In the Gothic order there are various styles of Cs.; sometimes it was in the form of a row of corbels bearing the parapet, and sometimes small arches surmounted the corbels.

Corniferous Period (from Lat. *cornu*, horn, *ferre*, to bear). In American geology this is the second of the four great divisions of the Devonian system, and includes the Schoharie grit and Corniferous limestone. It is a wide-spread formation, full of fossils, and rocks of this series, mostly sandstone, are found along the Appalachians in Ohio and in Canada, where they enclose valuable deposits of petroleum.

Cornigliano, a community in Italy 3 m. from Genoa, of which it is a residential suburb. Cotton spinning and dyeing are done here. Pop. 18,860.

Corniglio, a community in Italy in prov. of Emilia and 27 m. from Parma. Pop. 7040.

Cornill, Carl Heinrich (1854-1920), a scholar of the Old Testament. He was made professor at Königsberg in 1886, and at Breslau in 1898. He wrote some valuable works on the Old Testament, the best known being *Ezekiel*, in 1886; *Einleitung in das A.T.*; *Das Buch Jeremia erklärt*; and *Geschichte des Volkes Israel*.

Cornimont, a community in the Vosges dept., France. Cotton and thread are manufactured there. Pop. 4790.

Corning, a city of Steuben co., New

York, U.S.A., situated on the Chemung R., in the S. part of the state, a centre of a dairying and tobacco growing region. Its industrial life consists of foundries, machine works, brick and glass works, and lumber mills. Pop. 15,777.

Corning, Erastus (1794-1872), an American capitalist, b. at Norwich, Conn. Removed to Albany, N.Y., in 1814, and eventually became the owner of large iron works and banks. Principally known as connected with early American railway development.

Cornish, Vaughan, Eng. geographer, b. Dec. 22, 1862, at Debenham vicarage in Suffolk. His chief work lay in the field of physical geography in the study of the wave-like formation of the earth's crust. He won the Grand Prix at the Franco-British Exhibition in 1908 for scientific photography. Published in *The Jamaica Earthquake, 1907*, brought out in 1908. He also wrote: *Sea Beaches and Sand Banks*; *On the Dimensions of Deep Sea Waves*; *The Panama Canal and its Makers*; *The Strategic Geography of the Great Powers*; *A Geography of Imperial Defence*; *The Great Capitals*. From Sept. 1914 and throughout the War he lectured on strategic geography to naval and military officers, at home stations, in the Grand Fleet, and on the Western Front. President of the Geographical Assoc., 1928.

Corn Laws, a name given to certain statutes passed in the British Parliament relating to the exportation and importation of grain. Laws regulating trade in corn date as far back as the reign of Edward III. In the reign of Henry VI., with the object of securing a plentiful and cheap supply for home consumption, no corn was allowed to be sent out of the country. In the reign of Elizabeth little advantage was taken of the new law, providing free importation, and practically all the corn grown remained in the country. Towards the end of the seventeenth century, the legislators, who, being generally landowners, had the interests of agriculture at heart, conceived a new plan of promoting home production. Exportation was now encouraged freely by bounties, but the price of corn remained low and tended to decrease. In 1773 Burke passed an Act which exacted the small duty of 6d. on foreign corn, which might be imported when the home price was at or above 48s. a quarter. The exportation with its corresponding bounty were to cease when the home price was at or above 44s. This legislation was very beneficial to the rising manufacturing classes, but in 1791 it was repealed in the interest of the landowners when there was a

contributed *Lovel the Widower*, *Philip*, and *The Roundabout Papers*. In it appeared George Eliot's *Romola*, Matthew Arnold's *Culture* and *Anarchy and Literature and Dogma*, and it has also numbered among its contributors Ruskin, Mrs. Browning, Tennyson, Fitzjames Stephen, Leslie Stephen, and James Payn. It was formerly much illustrated, and brought out the cartoons of Richard Doyle, and sketches by Leighton, Du Maurier, and Thackeray. Editors were Dutton Cook, Leslie Stephen, and later James Payn. The present editor is Leonard Huxley; the publisher John Murray, 50a Albemarle St., W. 1.

Cornice, in architecture, is the moulded projection which crowns or finishes the entablature, each order of architecture having its own peculiar C. The Grecian Doric C. is composed of few and bold parts, really of little more than a corona (the projecting and principal member in every C.) finished above by one or two simple mouldings, and having attached a series of shallow plates or tablets called 'mutules,' which are a distinctive feature of the Doric C. 'Dentils' are peculiar to the Ionic C., and 'modillions' to the Corinthian C. In the Gothic order there are various styles of Cs.; sometimes it was in the form of a row of corbels bearing the parapet, and sometimes small arches surmounted the corbels.

Corniferous Period (from Lat. *cornu*, horn, *ferre*, to bear). In American geology this is the second of the four great divisions of the Devonian system, and includes the Schoharie grit and Corniferous limestone. It is a wide-spread formation, full of fossils, and rocks of this series, mostly sandstone, are found along the Appalachians in Ohio and in Canada, where they enclose valuable deposits of petroleum.

Cornigliano, a community in Italy 3 m. from Genoa, of which it is a residential suburb. Cotton spinning and dyeing are done here. Pop. 18,860.

Corniglio, a community in Italy in prov. of Emilia and 27 m. from Parma. Pop. 7040.

Cornill, Carl Heinrich (1854-1920), a scholar of the Old Testament. He was made professor at Königsberg in 1886, and at Breslau in 1898. He wrote some valuable works on the Old Testament, the best known being *Ezekiel*, in 1886; *Einleitung in das A.T.*; *Das Buch Jeremia erklärt*; and *Geschichte des Volkes Israel*.

Cornimont, a community in the Vosges dept., France. Cotton and thread are manufactured there. Pop. 4790.

Corning, a city of Steuben co., New

York, U.S.A., situated on the Chemung R., in the S. part of the state, a centre of a dairying and tobacco growing region. Its industrial life consists of foundries, machine works, brick and glass works, and lumber mills. Pop. 15,777.

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prohibitive duty on corn below 50s. In 1815 Parliament enacted that foreign corn might not be imported into Great Britain until the home price of wheat had reached 80s. a quarter. The law caused great economic distress. In 1827 and 1828,

was still suffering from the effects of the Napoleonic War, and a series of bad harvests (1816 and 1837-42) increased the distress. Robert Peel attempted to effect a compromise by introducing a system of a sliding scale in the duties, depending on the rise



THE PASSING OF THE CORN IMPORTATION BILL

This famous cartoon from *Punch*, which was entitled 'Carrying the Corn; or, the Free-Trade Harvest-Home,' gives some indication of the nation's support of the measure

more Liberal measures were brought before the House by Canning and Charles Grant. Agriculturists were gradually being convinced of the fact that the C. L. were based on a wrong principle, and that the interests of the general community were being sacrificed to the supposed interests of the landowners. England

and fall in the price of wheat. In 1836 an agitation was started in Manchester for the repeal of the C. L. and in the following year the Anti-Corn Law League was formed. Mr. Cobden and Mr. Bright were among the foremost of the advocates of Free Trade. The country was inundated with pamphlets on both sides of the question.

In 1843 corn was allowed to be imported, at a practically negligible duty, from Canada, and before long it happened that American corn came into England, through Canada, at the same rates. Peel, who was himself willing to abandon protection, could not hold his ministry together and resigned. He was obliged, however, to take office again, and in 1846 declared himself a convert to Free Trade. A fixed but reduced duty was placed on corn for three years, after which the C. L. were to be abolished. The price of corn did not fall greatly with the repeal of the C. L., nor did agriculture appear to suffer any great loss, while the country prospered in its industries. Towards the end of the nineteenth century, however, it was felt that the agricultural interests of Great Britain had suffered considerably, and a 'Fair Trade' party urged that a moderate protection should be given to benefit the agricultural classes. In 1903, at a time when Great Britain was suffering from the South African War, a registration duty of 1s. per quarter was placed on imported grain and flour, but the tax was abolished in the following year. In the meantime, Joseph Chamberlain brought before the country his scheme of preferential tariff for the colonies, with a tax of 2s. on foreign grain. Owing to the unrestricted naval warfare waged by Germany during the Great War and the consequent urgency of the question of food production in Great Britain, the British Gov. introduced Bills which were passed in 1917 and in 1918 in the hope of stimulating corn production in the U.K. Although these were war measures, they remain permanently on the Statute Book, and their ultimate effect on the increased production of corn in Great Britain has been practically nil. See separate articles on PEEL, BRIGHT, COBDEN, CHAMBERLAIN, FREE TRADE, and PROTECTION. Consult the text of the C. L. in *British Statutes* (16 vols.), London, 1882-1900; Thornton, *Historical Summary of the Corn Laws*, 1841; and Nicholson, *History of the Corn Laws*, 1904.

Corno, Monte, name of the mt. which terminates the Gran Sasso Range in the Apennines, Italy. Height 9580 ft.

Cornouaille, a dist. in Brittany in the dept. of Finistère. It is barren, rocky, and desolate, resembling in many features some parts of Cornwall in England.

Corns, growths caused by the thickening of the cuticle, generally on the toes, arising from continued pressure over a projecting portion of bone. They are either hard and dry

when they are situated externally, or soft when they occur between the toes, which C. are often very painful. A hard C. begins by the thickening of the skin, as the pressure of the boot increases so does the irritation and thickening until the core of the C. is formed. The treatment of C. consists in the removal of all pressure (such as tight or bad-fitting boots), and then to pare or file away the hard skin and extract the root of the C. If the C. is very hard it is best to soak the foot in hot water, and apply a solution of salicylic acid and collodion for several successive days and let it dry. This tends to soften the epidermis, and after a few applications the C. can be pared away when placed in hot water. Horses, as well as men, are subject to C., usually caused by the animal being badly shod.

Cornu, Maxime (1843-1901), a Fr. botanist, who, in 1872, graduated in natural science with a thesis, *Monographie des Saprolegniées*. His books all deal with the anatomy, pathology, and physiology of plant life.

Cornu Ammonis, the old Latin name for the fossil shells well known to us as Ammonites. They received their name from a fancied resemblance to the horns sculptured on the head of Jupiter Ammon.

Cornu Copiae, later called *Cornucopia*, 'a horn of plenty.' It is used as a symbol of prosperity. In architecture and sculpture the horn is often seen placed in the hands of Plutus, Fortuna, and others, who pour from it abundance of fruits or corn.

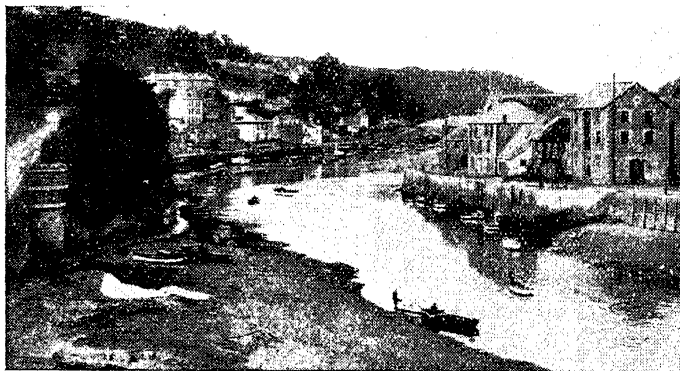
Cornude, a commune in prov. of Venetia, Italy, 16 m. from Treviso. Pop. 3600.

Cornus, the chief genus of *Cornaceæ* is widely distributed in all lands but Australia, and consists of twenty-five species of shrubs, trees, and herbs. *C. sanguinea*, the cornel or dogwood, is a berry-bearing herb found in Scotland, and its wood is used in making small instruments. *C. mas* (or *mascula*), the Cornelian cherry or dogwood, is a small tree bearing yellow flowers which are replaced by red berries used in making preserves. *C. florida* and *C. Nuttallii* yield a useful wood; *C. Canadensis*, the bunchwood, and *C. Suecica* bear large and conspicuous flowers.

Cornwall, a S.W. maritime county of England, bounded on the N. and N.W. by the Atlantic Ocean, E. by Devonshire, and S. and S.W. by the Eng. Channel. The Scilly Isles, 24 m. W. of Land's End, form part of the county. There are only two harbours of any importance on the N. coast, one formed by the estuary

of the Camel, where Padstow is situated, and the other being the Bay of St. Ives; there are numerous small creeks of no importance. The coastline on the N. is formed of bold and rugged cliffs, and is famed for its wild, rocky scenery, while the S. coast is still bold and rocky, but in a lesser degree, and its headlands are covered with luxuriant vegetation. Falmouth harbour, on the S. coast, is one of the finest in Britain. The surface of C. is extremely irregular, and from the Tamar to Land's End it is a series of rugged hills, alternating with wide stretches of moorland. Brown Willy (1368 ft.) is the highest point in the county. The chief river is the Tamar; it is tidal, and navigable for 19 m.

copper, lead, iron, zinc, bismuth, and arsenic. The principal tin mine now working is that of Dolcoath, near Camborne. Cornishmen are still expert miners but they do most of their mining in America and S. Africa. All tin ore raised in England is however obtained from C. The product next in importance is China clay, the centre of this industry being at St. Austell. It is exported to the pottery districts for the manuf. of porcelain and to Lancashire for cotton goods. The Serpentine rock is largely quarried in the Lizard district, and made into ornamental objects: it is noted for its beautiful colourings. The fisheries of C. are among the most important on the



LOOE, CORNWALL

[G. W. R. Photo.]

The climate is mild, particularly in the S., and there the vegetation grows in almost tropical abundance, fuschias, geraniums, camellias, myrtles, and hydrangeas of considerable size flourishing in the Penzance and Falmouth districts during the winter: in the Scilly Isles exotics grow in the open, and a good supply of early vegetables is the result of the development of market-gardening. Fruit-trees, with the exception of the apricot, nectarine, and peach, thrive successfully. C. ranks high as an agricultural county: the soil is rich in most parts, the crops plentiful, and very early in some localities. Oats form the most important grain crop; the green crops include swedes, turnips, and mangolds. Numbers of cattle and sheep are bred. C. formerly obtained much wealth from its mines, of which those chiefly now existing are tin; it yields also

S.W. coast, and form another industry of the county. The chief fishing stations are at Mounts Bay and St. Ives; mackerel, pilchards, and herrings are caught in large quantities, 20,000 hogsheads of pilchards being taken in an average year. In some respects the natives resemble the Welsh people, such as in their aptitude for oratory and an intense love and pride of county. It is a county full of prehistoric remains. They may be classed as follows: (1) Cromlechs, such as Lanymon, Mulgra, and Zennor, these all being found in the Land's End district. The first is high enough for a man to ride under. (2) Rough monoliths, found in all parts of C. (3) Circles, of which the principal is that known as the Hurlers, near Liskeard. (4) Alignments, or avenues of stones, a very interesting example of one being that called the Nine Maidens

near St. Colomb Major. Then hut dwellings, cliff castles, and hill castles also come under the category of antiquities. C. possesses many ruined castles, such as those at Tintagel and Launceston, parts of which date from Norman times. The county belongs to the W. circuit, and the assizes are held at Bodmin, the county town. C. is becoming increasingly popular with visitors. The Americans know and love it. Area 868,167 acres. Pop. 320,705.

Cornwall, a tn. in Ontario, Canada, at the foot of the Long Sault Rapids of the R. St. Lawrence, 70 m. from Montreal, with cotton, woollen, and grist industries, and saw-mills. Pop. (1926) 12,500. Almost opposite is the Indian village of St. Regis, Quebec.

Cornwall, Barry, see PROCTER, BRYAN WALLER.

Cornwallis, Charles, Marquis (1738–1805), son of the first Earl C. On leaving college he entered the army, and in 1761 served a campaign in Germany. In 1762 he succeeded to the earldom and estates of his father. In 1770 he was made governor of the Tower. When the War of American Independence broke out, he went over with his regiment, and was victorious over General Gates at Camden, 1780; also over General Greene at Guilford, 1781; but at Yorktown, Virginia, disaster befell him, and the Eng. cause in America was completely overthrown. He escaped censure owing to the great esteem in which the king held him, and in 1786 he was appointed governor-general of India, and while there made many reforms, but on account of differences with Tippoo Sahib his plans were much interrupted. In 1791 he captured Bangalore, and after having concluded a treaty with Tippoo Sahib he returned to England in 1793. He was then raised to the rank of marquis, and in 1798 was appointed to the viceroyalty of Ireland, where he succeeded in subduing the rebellion of 1798, showing much integrity and wisdom in his method of obtaining peace. In 1801 he was replaced by Lord Hardwicke. In 1802 he negotiated the peace of Amiens. In 1805 he was sent to India as governor-general in the place of Lord Wellesley, but upon arrival at Calcutta his health had already broken down, and on the way up country, to take command of the troops, he d. at Ghazipur. Life by Karr, 1890.

Cornwallis, Sir William (1744–1819), an admiral, was the younger son of Charles, first Earl of Cornwallis. He entered the navy in 1755, and in 1758 served at Louisbourg, in 1759 at the battle of Quiberon Bay, and for his

services was made commander in 1762. He was afterwards engaged in the actions off Grenada (1779), St. Kitts (1782), and Dominica (1782). He was then made rear-admiral, vice-admiral, and admiral in 1799. In 1795 he encountered a Fr. force far greater in numbers than his own, but safely escaped, and he commanded the Channel fleet in 1801 and 1803.

Coro, a tn. in Venezuela, S. America, cap. of the State of Falcon, about 210 m. W.N.W. of Caracas. It was founded in 1527, and was the capital of the Spanish province from that date until 1578. Pop. 10,930, of whom many are Indians and Mestizos. It has much declined since Caracas was made the capital. Its port is La Vela, which exports coffee and hides. Pop. 15,000.

Corocoro, a tn. and mining centre in the dept. of La Paz, Bolivia. Copper ore is the chief product of the mines, and it is exported from Mollendo. Pop. 3000.

Corolla. The inner whorl of floral envelopes which surround and protect the essential organs of the flower. The C. is made up of petals which are usually brightly coloured and often scented, in order to attract insects for the purpose of pollinating the flower. Another function of the petals together with the sepals is to protect the stamens and pistil when the flower is in bud, and in some cases from rain, etc., by closing when the sun goes in. When the petals are free from one another, as in buttercups, the flower is said to be polypetalous; it is gamopetalous when joined to form a tube or cup as in primroses. A flower is distinguished as hypogynous, perigynous, or epigynous, according as the base of the petals are inserted below, on a level with, or above the ovary, as in buttercup, rose, snowdrop, respectively. In many flowers, e.g. daffodil, there is no distinction between two floral envelopes, but the calyx and C. together form the perianth; in other cases there is calyx only, and C. is missing, e.g. meadow-rue. When all the petals are alike the flower is said to be regular, as in lily, otherwise it is irregular, as in orchid, pea, etc. Of irregular flowers the two best known types of C. are the bi-labiate or two-lipped, as in the dead-nettle family, and the ligulate or strap-shaped, which occurs in the outer florets of the daisy. In some cases the C. is fugacious, i.e. it falls off as soon as it is gathered, as in flax; in a few cases it is persistent and remains in a withered condition round the fruit; this occurs in campanula.

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Corollary, in mathematics, is a

proposition which follows another proposition as a consequence, and therefore does not require any separate demonstration.

Coromandel, the name of the oldest gold field in New Zealand. It is the centre of the gold-mining and kauri timber district on the C. (Colville) peninsula. It was discovered in 1852. Pop. 2000.

Coromandel Coast, a name given to E. coast of India, between Cape Calimere and the mouth of Kistna R.

Coron, or **Koroni**, a seaport and fortress of Greece in Messenia, situated on the W. coast of the Gulf of Kalamata, near the site of the anct. Colonides. The industry of the town lies in silk manufacture. Pop. 2700.

Corona, (1) in botany, the crown at the mouth of the tube formed by the perianth (petals and sepals) in the genus *Narcissus*. (2) In architecture, is the lower part or drip of a cornice which projects for some distance in order to carry off the rain. The term is also used of the crown or circlet suspended from the roof of a church to hold tapers, which are lighted on solemn occasions. (3) In Astronomy. See **SUN**.

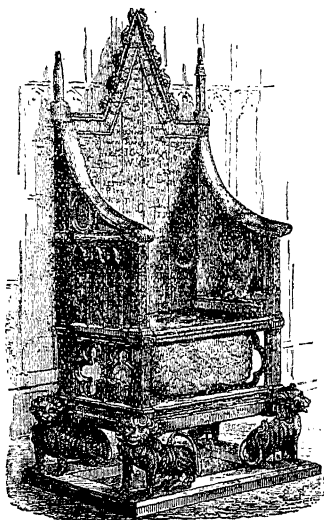
Corona Borealis and Australis, the N. Crown and S. Crown. The first is a N. constellation, found in Aratus, who says it was formed by Bacchus in memory of Ariadne. It is situated between Boötes and Hercules, and the bright star of its cluster (marked α) may be seen about an hour E. of Arcturus, and about eight degrees nearer to the pole. N. Coronæ was the first nova to be observed with the spectroscope (1866). Corona Australis is a small S. constellation, first found in Ptolemy's catalogue. It is situated between the front legs of Centaurus.

Coronach, the name applied to a dirge which in years past was sung at funerals in Ireland. In the Highlands of Scotland the singing of this dirge was called 'keening,' but it is sometimes played on the bagpipes.

Coronado, Francisco Vasquez de (1500-45), a Spanish explorer of the S.W. of the U.S.A.; appointed in 1539 Governor of New Galicia; set out in 1540 to discover the seven cities of Cibola. He explored E. Arizona, the Rio Grande, and Kansas. See G. P. Winship's *Coronado Expedition*, 1896.

Coronation (Lat. *coronare*, to crown), the ceremony of crowning the sovereign of a country. The practice of placing a crown on the head of a new sovereign dates from early times, as we read in the O.T. that Solomon was crowned. The kings of Israel and Judah were usually anointed with oil by the high priest, by which act they were consecrated to the service of

God. This anointing with oil still forms part of the C. service of a British sovereign. It probably resembles the 'hallowing' of kings mentioned in the *Anglo-Saxon Chronicle*, and its form is in all essentials that used since the time of Richard I., though, of course, the service has been modified from time to time. The C. of the British sovereign takes place in Westminster Abbey. The anct. C. chair is carefully preserved, and has been used at the C. of Eng. kings and queens since the time of Edward I. Under the throne rests the Stone of



THE CORONATION CHAIR, WESTMINSTER ABBEY

Destiny (Lia Fail), which, according to tradition, was the pillow of Jacob, and was, in the fifth century B.C., carried to Ireland and thence to Scotland. It was brought to England by Edward I. as a symbol of his conquest of Scotland, for on that stone the Scottish kings had always been crowned. The service is read by the Archbishop of Canterbury, after which the sovereign takes his C. oath. The oath in the Eng. service has always been very explicit, in this way differing from that of other European countries. After the Revolution of 1688, the British sovereign had to promise to maintain 'the laws of God, the true profession of the Gospel, and the Protestant reformed religion as it

is established by law.' Special clauses were here added which were particularly obnoxious to the Rom. Catholic subjects in the U.K. By an Act of Parliament in 1910, the oath was altered, and the objectionable phrases omitted. After the oath has been taken, the sovereign is seated in the anct. C. chair above mentioned, and is anointed, on the head, breast, and palms of the hands, with holy oil from the ampulla. Next follows the investiture, when the sovereign dons the *Colobium Sindonis*, a white silk shirt, and is girt with a sword. The orb and the ring are also delivered to him, after which he is crowned by the archbishop. The sovereign then goes back to his throne, and receives the homage of the peers. It was formerly the custom for the consort of the sovereign to be crowned some months after the formal C., but at recent Cs. in England the consort was anointed and crowned after the acts of homage had been paid. The king and queen finally received the Holy Communion. In early times in Europe a king or queen was not recognised until the C. had taken place. Now the reign dates from the accession and not from the C., which is usually delayed for some months after the death of the late sovereign. Consult Legg, *English Coronation Records*, 1901; Pascoe, *The Pageant and Ceremony of the Coronation of their Majesties King Edward the Seventh and Queen Alexandra* (New York), 1902; Burke, *Historical Record of the Coronation of Edward VII.*, 1904.

Coronation Gulf, an arm of the Arctic Ocean, the extreme N. point of Canada. It was discovered by Sir John Franklin (1786-1847), the famous Arctic explorer.

Coronea, an anct. tn. in Bœotia, in Greece, and situated to the W. of Lake Copais. The Bœotians conquered the Athenians here in 447 B.C., and the Spartans defeated the Thebans and their allies in 394.

Coronel, Battle of, a naval battle in the Great War fought on Nov. 1, 1914, off Coronel on the coast of Chile, between Rear-Admiral Cradock's squadron comprising the armoured cruisers *Good Hope* and *Monmouth*, the light cruiser *Glasgow* and the converted merchantman *Otranto*, and a Ger. squadron commanded by Admiral von Spee consisting of the armoured cruisers *Scharnhorst* and *Gneisenau*, and the light cruisers *Leipzig* and *Dresden*. The British ships were old and their armament immensely inferior to that of the Ger. cruisers. The flag-ship *Good Hope* carried two 9.2-in. guns, but for the rest only 6-in. guns were carried. The Gers. mounted a broad-

side of no fewer than sixteen 8.2-in. guns. The result was never in doubt, and the *Good Hope* and *Monmouth*, after a gallant fight against odds, were sunk, the British loss being 1400 men. The other two boats escaped, the *Glasgow* eventually taking part in the Battle of the Falkland Islands in which Admiral Cradock's defeat and death were completely avenged.

Coronella, a genus of ophidians inhabiting Europe, Asia, and America. All are harmless. *C. laevis* (or *Austriaca*), a species found in Britain, is called the smooth snake. It is about 2 ft. in length, feeds on lizards and mice, and is viviparous.

Coroner. The office of C. is one of considerable antiquity. The *Mirror of Justice* is cited by Coke to show that the office existed as early as the reign of Alfred. But there is no satisfactory evidence to establish an earlier period than that of Richard I. The name of C. is said by Lord Coke to be derived from Lat. *corona* (a crown), from the fact that the C.'s office had principally to do with pleas of the crown. In this general sense the Lord Chief Justice is by virtue of his office supreme C. for England, with power to hold an inquest in any part of the kingdom. But the officers now usually understood by this term are the county Cs., although the Coroners Act, 1887, which re-stated the qualifications of a C., expressly saved the powers of *ex officio* Cs. In early times the office of C. appears to have been one of great estimation; for by statutes of the reign of Edward I. and Edward III., they are required to be knights, or 'of the most meet and most lawful men of the county.' The proprietary qualification was the holding of land in fee in the county, the idea being that the C. should have sufficient wherewith to answer to the people for his shortcomings. Cs. of counties are and always have been elected to their office by the assembled freeholders of the county. The property qualification is now practically dispensed with, as the Coroners Act of 1887 has in effect left the county to pay any penalties incurred by the C. It is generally considered that no particular amount of land is required to render a man eligible for the office of county C., but if a person having no land were appointed, his appointment might be disallowed by the Lord Chancellor as being contrary to the writ de *coronatore eligendo*. The C. formerly had jurisdiction of a very comprehensive nature, embracing inquiries as to sudden death, treasure trove, wreck, whales, sturgeon, and deodands (proceeds of sale of a personal chattel

which had caused the death of any person ordered to be paid to charity). The Coroners Act, 1887, put an end to all these duties except the function of holding inquests *super visum corporis*, and as to sudden death and treasure trove. The principal duty of a C. is, with the assistance of a jury composed of at least twelve men and not more than twenty-three, to inquire into the deaths of persons who have died suddenly by violence, under suspicious circumstances, in prison or at the hands of the hangman. County Cs. are elected for life; but if they accept any office incompatible with their duties, such as that of sheriff or alderman, or become incapacitated, they may be removed by means of the writ *de coronatore exonerando*; and a C. guilty of extortion, corruption, or wilful neglect of duty, is, by an Act of George II.'s reign, not only punishable as for misdemeanour, but also incapable of ever again acting as a C. The Lord Chancellor has power independently of the above Act, to remove Cs. for neglect of duty, upon petition presented by the freeholders of the county. A C. can enforce a *post-mortem* examination of the body and summon medical or other witnesses. He may also order exhumation, but would generally, in cases of doubt, first obtain the order of the Home Secretary. If the C.'s jury find a verdict of murder or manslaughter, the C. can commit the accused for trial, and, in manslaughter, admit him to bail. The verdict of the jury must be that of twelve at least. Under a local Act the C. of the City of London is empowered to hold an inquiry into the outbreak of fires, which inquiry may eventuate in a verdict of arson.

In the U.S.A. the duties of a C. are, in the main, the same as those of a C. in England, though, in some cases, the inquisition includes the origin of fires, while in others it is confined to cases of suspicious deaths. The office of C. in the U.S.A. is held only for a term of four years or some other period. A C.'s resignation does not take effect until accepted by the state governor. A justice of the peace may act as C., and obtain compensation therefor, provided there be no C. in office, or the C. be absent from his county. A C. is entitled to compensation in fees from his county, though fees cannot be allowed for a preliminary examination to determine whether an inquest is necessary, where it is not found that the inquest was necessary. As incidental to his powers the C. can administer oaths to witnesses, employ a physician to make a *post-mortem* examination, and fine a juror for refusal to attend.

The C.'s duties are mainly judicial,

but he has also a ministerial capacity, as where he acts as substitute for the sheriff.

Coronet, an inferior crown worn by the nobility. In England they were in use in the reign of Edward III., but the different forms given to the Cs. of the various orders of the peerage are of later date, as is also the use of the crimson velvet cap, lined with ermine and surmounted by a gold tassel, now worn within the C. Barons first wore Cs. in the reign of Charles II. They are worn by peers on the occasion of a state ceremony, such as the coronation of a king. In 1665 permission was granted by Charles II. to the peers of Scotland and Ireland to use similar Cs. to those worn by Eng. peers. The following are the different forms that are used throughout Great Britain: the C. of the Prince of Wales differs from the royal crown only by the absence of one arch. The C. of the other princes, sons of the king, have no arches. The C. of a duke bears over the rim of gold eight strawberry leaves. A marquis has four strawberry leaves, alternating with as many pearls upon short points. An earl's C. has eight points of a greater height, with a pearl on each, alternating with as many strawberry leaves on the rim below. A viscount's C. has sixteen pearls set on the rim itself, while a baron has six in the same position. The pearls, so named, are made of silver. No peer, unless of royal family, may have his C. adorned with jewels. The Cs. of foreign nobility have no caps, and are used only in blazonry.

Corot, Jean Baptiste Camille (1796–1875), a Fr. landscape painter, *b.* in Paris. According to his father's wishes, he became an assistant in a Paris drapery business, but, after having served an apprenticeship of seven years, he resolved to become a painter. He first studied art with Michallon, on whose death he passed into the atelier of Victor Bertin. In 1825 he went to Italy, where he stayed for two years, studying the old masters and feeding his imagination upon the beautiful scenery that surrounded him. In 1827 he exhibited two Italian landscapes at the Salon, 'Vue prise à Narni,' and 'Campagne de Rome.' He then settled in Paris, though he again travelled in Italy, in 1835 and 1843, as well as in England and Switzerland. In 1833 he won a medal of the second class, and in 1855 and 1857 medals of the first class. He received the cross of the Legion of Honour in 1846, and was promoted officer in 1857. C.'s genius was not early recognised, and he made his way

slowly, but in later life wealth and honour were heaped upon him. In 1874 his admiring, almost worshipping friends, hurt by the indifference of the Salon, gave him a gold medal. His pictures were sold at a very high price, but C. was indifferent to money. 'Hagar in the Wilderness' and 'Dante' he never parted with, refusing all offers for them. He was a gentle, kind-hearted man, very generous to his friends, and devoted to his mother and sister. He never married. C.'s early work is clearly influenced by his classical studies.

did not paint in nature's blemishes. His pictures are imaginative visions of 'the light that never was on sea or land.' Among his masterpieces are: 'Danse de Nymphes,' 'Orphée,' 'Paysage,' 'Macbeth,' 'Joueur de Flûte,' 'Homère et les Bergers,' 'Les Bûcherons,' 'Étoile du Soir,' 'Effet de Matin,' 'Plaisirs du Soir,' and 'Baptême de Jésus Christ.' Consult Fr. Lives by Rousseau, 1884, and Michel, 1905; Eng. ones by D. C. Thomson, 1892, and Robinson (in Modern Fr. Masters series), New York, 1896; and Blanc, *Les artistes*



LANDSCAPE

(J. B. C. Corot)

He showed an extraordinary technical ability; his drawing is very careful and detailed, and his execution somewhat precise and severe. He peopled his landscapes with nymphs and goddesses. It was not till about 1843, after his return from his second visit to Italy, that he began to assert his full individuality. Following the example of Constable and other Eng. painters, he worked out of doors, choosing for his main sketching ground Barbizon, in the forest of Fontainebleau, and the valley of the Seine. He interpreted nature in her tender, elusive moods, on a hazy spring morning or a shadowy night. He was fond of painting mists, and his colours are of the most delicate shades of greys and greens. Some critics have objected that he

de mon temps, Paris, 1879; and *Corot and Millet, with Critical Essays by G. Geoffroy and A. Alexandre*, New York, 1903.

Corowa, a tn. on the N. bank of the Murray, New South Wales, Australia. There are lead mines in the neighbourhood, and the town is noted for its butter, wine, and dried fruits. Pop. 2387.

Corozal, a tn. in Bolivar, Colombia. 75 m. from Cartagena. There is an active trade in cattle, tobacco and straw mats. Pop. 11,000.

Corporal, a title given to a non-commissioned officer, whose rank in the British army is below that of sergeant, and is now, since the abolition after the Great War of the lance-corporal, the lowest grade of non-commissioned officer. The deriva-

tion of the word is somewhat doubtful, but similar terms are in use by other countries for non-commissioned officers of corresponding rank, as *Caporal* in France, and *Caporale* in Italy. A corporal is distinguished by wearing two 'stripes' on his sleeve, while a lance-corporal wore one only. While he has certain advantages, and on occasion may be given the command of a small number of men, a corporal usually takes his place in the ranks as a private during parade. In the British Household Cavalry there is no sergeant, the term corporal taking its place; while in the navy the term ship's corporal is applied to a petty officer who takes orders from the master-at-arms.

Corporal, the name of the linen cloth used in the Rom. Catholic and the Anglican churches to cover the sacred elements of the Eucharist. There are generally two in use, one spread on the altar for the vessels to stand on, and the other is used to cover over the chalice.

Corporal Punishment, see FLOGGING.

Corporation. A C. is an association of individuals which by a legal fiction is regarded as a single person. The distinguishing characteristic of a C. is expressed in the maxim that a C. can never die, and consequently the death or change of the persons who administer the corporate property has no effect upon the ownership, which subsists in the artificial person or legal entity of the C. The notion of a C., together with its various corporate attributes, is a conception borrowed from the Rom. legal idea of a collegium, having a right of universal or perpetual succession. In the Eng. system Cs. are said to be either sole or aggregate. The best examples of Cs. sole are the king and a parson. A C. sole implies a succession of single persons occupying a particular office, each assuming the rights and powers of his predecessor. The conception of a C. sole appears to be quite indigenous to Eng. law. The constitutional dogma that the king cannot die is supposed to have originated in turbulent times, when it was desirable to make an impression on superstitious minds. A C. aggregate is defined by Blackstone to be one which consists of many persons united in one society; hence many writers consider Cs. aggregate to be the only true form of C. Illustrations are the mayor and commonalty of a city or town (see under BOROUGH), now called a municipal C. Cs. are also classified as ecclesiastical and lay. Illustrations of the former are bishops, deans, and chapters. The latter are divisible into

civil, or such as exist for temporal purposes, and *elemosynary*, or such as are constituted for the perpetual distribution of alms, e.g. hospitals supported by voluntary contributions. Modern writers frequently classify Cs. into ecclesiastical, municipal, trading, charitable, and educational. Lay Cs. may also be divided into *privileged*, i.e. endowed by the law with special powers in excess of the ordinary law for the purpose of carrying out some work to the public advantage, e.g. chartered companies; and *unprivileged*, the most common examples being registered joint-stock companies. These latter entities are assimilated rather to ordinary partnerships in many respects. A C. can only be created by the king or an Act of Parliament; but when any such body has existed from time beyond legal memory (i.e. the death of Richard I., 1199), it is presumed to have originated in one of these ways. The essential characteristics of a C. are the use of a common seal, the power of making bye-laws, the capability of suing and being sued in its corporate name as a single person (so that the C. as an entity is responsible for the acts, contracts, and defaults of its members), the power of the majority to bind the C., and the power at common law to acquire and hold land. The power to hold land is, however, restricted by the Mortmain Acts, which make it necessary for a C. to obtain the licence of the crown before it can acquire land for any purpose. The dissolution of a C. may be effected by a surrender to the crown, where all the members concur. See also BOROUGH.

In the U.S.A. 'Corporation' is the equivalent of the English Joint Stock Company. See COMPANY.

Corporation Duty, a duty of 5 per cent. levied by the Customs and Inland Revenue Act, 1885, on the annual value of income or profits accruing to a corporation (*q.v.*) from all its real and personal property. This duty is a substitute for 'death duty,' which a corporation escapes inasmuch as by a legal maxim it can never die, even though the physical persons composing it may. But a corporation is liable to pay succession duty on realty acquired under a will, and legacy duty on a gift of personality.

Corporation Profits Tax is the name given to the tax which was first imposed in the Budget of 1920-1. It imposed a tax of 1s. in the pound on the profits of limited liability companies. The net proceeds from this tax for the year 1928-9 amounted to £817,129.

Corps, Army. see ARMY—Army Corps.

Corpulency, *see* OBESITY.

Corpus Christi, one of the principal feasts in the Rom. Catholic Church; founded by Pope Urban IV. in 1264 in honour of the Blessed Sacrament. The festival is kept on the first Thursday after Trinity Sunday.

Corpus Christi: (1) A thriving city and seaport, cap. of Neuces co., Texas, U.S.A., on Corpus Christi Bay, 192 m. W.S.W. of Galveston. Much cotton is grown in the vicinity and it is a popular resort of visitors. It has extensive trade in fish, oysters, turtles, canned food, and fruit. Pop. 27,741. (2) A lagoon in the Gulf of Mexico between the is. of Mustang and coast of Texas.

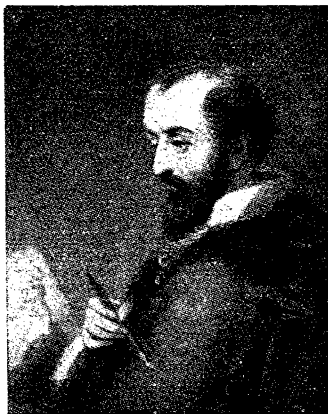
Corpus Christi College, (1) one of the colleges of the Cambridge University, founded in 1532 by the brethren of two guilds of Corpus Christi and the Virgin Mary in Cambridge, for the purpose of educating clergy to take the place of those who had died during the plague. Henry, Duke of Lancaster, alderman of these guilds, procured a royal charter for ratifying the endowment. The college was also known as St. Benet (Benedict) from a neighbouring church of that name, at which the fellows worshipped. In 1578 Sir Nicholas Bacon added a chapel to the building, and Archbishop Parker bequeathed to it his valuable manuscript library. Christopher Marlowe and John Fletcher, the Elizabethan dramatists, were members of the college. (2) One of the smaller colleges of the Oxford University. It was founded in 1516 by Richard Fox, Bishop of Winchester, and Lord Privy Seal, for a president, twenty fellows, twenty scholars, and two chaplains. The main buildings consist of the quadrangle, hall, chapel, and library. In 1706 Dr. Turner erected an additional building overlooking Christ Church walks. Corpus Christi was the first college in Oxford to throw open its professorial lectures to all members of the University, and the first to establish an endowed chair of Gk. It has numbered among its scholars Nicholas Udall, Hooker, John Keble, and Thomas Day.

Corpus Delicti (Lat., body of the offence), in the Scots criminal law means the substance of the crime or offence alleged, together with the attendant circumstances, as specified in the 'libel' (the summons containing the prosecution's allegations). The C. D. must be satisfactorily proved before a conviction can be obtained.

Corpus Juris Civilis, literally 'a body of civil law,' a term denoting the main body of Rom. law, at the time of the Emperor Justinian, incorporated in the *Codez*, *Pandect*, or *Digest*, *Institutes*, and *Novellæ*.

Correggio, a tn. in a fertile plain, prov. of Reggio nell' Emilia, Italy, 11 m. N.E. of Reggio. Here Antonio Allegri, surnamed Correggio, was b. and d. Pop. 19,400.

Correggio, Antonio Allegri da (c. 1494-1534), an Italian painter, surnamed C. from the place of his birth, a small tn. near Modena. Nothing very definite is known about his life. Vasari and contemporary historians record that he lived and d. in poverty, but from existing documents it appears that he received a high price for his pictures, and that his relatives were tradespeople in comfortable



ANTONIO ALLEGRI DA CORREGGIO

circumstances. It is quite uncertain who was his first teacher. He is said to have studied under Francesco Bianchi-Ferrari at Modena, but his early work shows no resemblance to that of this artist; Giambattista, Lombardi, Andrea Mantegna, and his uncle, Lorenzo Allegri, a local painter of little note, have also been named. Lombardi was head of the academy at Correggio, and very probably taught him anatomy. In his treatment of mythological subjects, and in his figures of children, he clearly shows the influence of Mantegna. C.'s figures of children have never been surpassed. In writing of them, Annibale Caracci said: 'Everything that I see astonishes me, particularly the colouring and beauty of the children, who live, breathe, and smile with so much sweetness and vivacity.' Traces of the influence of Raphael and of Leonardo da Vinci may also be found in C.'s work, but at the same time his

style is peculiarly his own. It is remarkable for chiaroscuro. The lights and shades imperceptibly glide into one another, and his exquisite, delicate colours attain perfection. In 1518 C. was engaged on frescoes for the chamber of the abess of San Paolo at Parma. There he also executed frescoes for the cupola of San Giovanni, and his 'Ascension of the Virgin' for the cathedral excited the highest praise from Titian. In 1530 he returned to Correggio, where he lived till his death. He had early attracted the attention of Lady Veronica Gambara, and still retained her patronage. C. devoted himself to mythological and sacred subjects. The frescoes in the convent of San Paolo (executed in 1518) represent Diana, drawn in a car by white stags, with sixteen little cupids peering through vines. Other mythological pieces are: 'Mercury teaching Cupid to read,' in the National Gallery, London; 'Jupiter and Antiope,' in the Louvre; and 'Danaë,' in Rome. Among his sacred pictures are the famous 'Notte' (1529), a beautiful picture of the Nativity in the Dresden Gallery; 'Ecce Homo,' in the National Gallery; and 'The Marriage of St. Catherine,' in the Louvre. His greatest fresco work is, perhaps, that in the cupola of the cathedral at Parma, already mentioned. The Madonna, surrounded by a host of singing and adoring angels, goes forward to meet her Son, Christ. The frescoes in the cupola of San Giovanni show Christ in the clouds, with His twelve apostles seated below. Consult Thode, 'Correggio,' in *Künstler-Monographien*, 1898; Ricci, *Antonio Allegri da Correggio*, 1896; Selwyn Brinton, *Correggio*, 1900, in the *Masters of Painting and Sculpture* series; and Sturge Moore, *Correggio*, 1906.

Correlation of Organs, the interdependence which appears to exist between certain structures in an organism. Instances are given in the works of Cuvier, Isidore Geoffroy St. Hilaire, Charles Darwin, and others, but the laws governing them are still obscure. Hairless dogs have imperfect teeth, and pigeons with short beaks have small feet. Sometimes the correlation seems particularly whimsical, as in the case of male white cats with blue eyes, which are generally deaf. The only generalisation possible is the rule that certain structures are so intimately associated that variation in one is always accompanied by variation in the other.

Correspondence Classes. The Chautauqua 'Literary and Scientific Circle' in 1878 inaugurated a system

of education by C., exercises being sent out to pupils residing in all parts of the U.S.A., the work being sent back to tutors for correction, and the corrected exercises and explanations returned to the pupils. Britain has adopted the same system in connection with university extension organisation. See CHAUTAUQUA INSTITUTION. The University Correspondence College is one of the chief institutions of the kind; it prepares pupils for London University examinations, and degrees may be obtained through preparation by C. alone. The college magazine, published weekly, is *The University Correspondent*. Text-books are published in connection with the C. C. by the University Tutorial Press. See INTERNATIONAL CORRESPONDENCE CLASSES.

Correspondence Schools.—In 1856 Charles Toussaint, a Frenchman, and Gustav Langenscheidt, a Ger., founded a school for teaching foreign languages by correspondence. Later, with the popularisation of University Extension lectures, C. S. became numerous, especially in the U.S.A. In America in 1873 the Society to Encourage Studies at Home was formed, and in 1875 a Correspondence University was started 'to supplement the work of other educational institutions by instructing persons who from any cause were unable to attend them.' About 1880 Thomas J. Foster, an American, started a column in his paper, *The Mining Herald*, open to questions and answers on mining problems. He then prepared a course on the subject of coal-mining, and later the International Correspondence Schools of Scranton, Pa., were formed. In England C. S. are held to help students through qualifying examinations such as the Matriculation and General Schools examinations. There are also a number of commercial C. S. that offer courses in accountancy, journalism, commercial art, etc. Similar commercial C. S. exist also in America, some of which give students very little return for their money. Altogether in the U.S.A. there are over 300 C. S. In Canada, owing to vast tracts of sparsely-inhabited country, education is carried on to a large extent by correspondence. The educational authorities of Toronto issue courses of instruction in the usual secondary school subjects.

Corrèze, a dept. of S. Central France, part of the old prov. of Limousin. The surface forms a hilly tableland, especially in the N.E. district, which is broken up by various fertile river valleys. The chief rivers are the Dordogne, Vézère, and

Corrèze. The climate is generally cold and damp, but milder in the S.W. valleys. Wine of medium quality is produced from the vineyards in the districts around Brive. Sheep, pigs, and goats are extensively reared, and poultry farming and cheese making form an industry to many of the inhabitants. The mineral products include slate, coal, iron, stone, and alabaster. The most important industry of C. is that of the manufacture of fire-arms at Tulle, the capital of the province. There are also flour mills, breweries, oil, and dye-works. The department is divided into three arrondissements, Tulle, Brive, and Ussel, and the means of communication are by the Orléans railway and the Dordogne, which is navigable. Pop. 269,300.

Corrib, Lough, a lake in W. Ireland, in the counties of Galway and Mayo. It is the second largest in Ireland, being 27 m. in length, with an extreme breadth of 7 m. It is very shallow, and contains about 300 is.; its outline is very irregular, and it is drained by the R. Corrib into Galway Bay. It is connected on its N. side with Lough Mask, by means of a partly underground channel.

Corrichie Moor, on the borders of Kincardine and Aberdeen shires, in the parish of Banchory Ternan, about 15 m. from Aberdeen. In Oct. 1562, the Earl of Huntly was here defeated by Queen Mary's soldiers, under the command of her half-brother, the Earl of Moray.

Corridor (Fr. *corridor*, from It. *corridore*; Lat. *corridorium*, from *currere*, to run), a gallery or passage in a large building, such as a palace, hotel, or hospital, on to which many different apartments open.

Corrie (Gaelic *coire*, a cauldron or large pot), a bow-shaped erosion in a mountain side, due to denudation by torrents, springs, frosts, glacier action, etc., in conjunction with the peculiarities of the natural rock formation. In Norway they are known as *botn*, in Dauphiné as *cros*, and in the Tyrol as *kahr* or *kar*. They are called also *cirques*.

Corrientes: (1) A prov. of the Argentine Republic, bounded on the W. by the Parana and on the E. by the Uruguay rivers. The N. district is low and marshy, but the S. is fertile with some forests. The chief industries are connected with cattle rearing, maize, cotton, indigo, tobacco, fruits, especially oranges, sugar, and timber. Its principal river is the C., 120 m. long. Area 32,580 sq. m. Pop. 407,000. (2) Cap. of the above prov., on the E. bank of the Parana, below the confluence of this river and the Uruguay, some 300 m. N.

of Buenos Aires. It is surrounded by orange groves and trades in hides, maté, cotton, wool, sugar, and tobacco. Cattle, sheep, and horse rearing and shipbuilding are carried on. Pop. 33,000. (3) A cape in the prov. of Buenos Aires, Argentina, the end of the Tandil Sierra.

Corrievrechan (Gaelic, 'Brecan's Cauldron'), a whirlpool off Argyllshire, Scotland, between the is. of Scarba and Jura, caused by the meeting of tides about a rock some 15 ft. below the surface.

Corrigan, Michael Augustine (1839-1902), third Rom. Catholic Archbishop of New York, U.S.A. He was b. in Newark, New Jersey, and graduated at Mount St. Mary's College, Emmittsburg (1859), and later became Professor of Theology at Seton Hall College, S. Orange. In 1873 he was made Bishop of Newark by Pius IX., and in 1885 succeeded McCloskey as Archbishop of New York. See Life by Mooney.

Corroboree, the name applied to a nocturnal convention by the aborigines of Australia. Strange rites are gone through, and there is also wild and furious dancing round the campfires. These Cs. take place on all great occasions. It is 'the medium through which the delights of poetry and the drama are enjoyed.' It is also the occasion for gymnastic displays and religious observances and, in fact, for all sorts of festivities. Walter M. Roth, *Ethnological Studies*, 1897; Spencer and Gillen, *Native Tribes of Central Australia*, 1899; *Native Tribes of the Northern Territory*, 1914.

Corrosion of Metals, the loosening or eating away of the substance of metals by changes of chemical composition. The dangerous effects of corrosion may be the weakening of a metallic structure, as in bridges, boilers, etc., or the introduction of metallic poisons into water and food-stuffs. Some metals do not readily enter into chemical composition. For this reason, gold, silver, platinum, and copper are sometimes called the noble metals, and they are accordingly useful where the maintenance of purity is of first importance. For many purposes these metals are much too expensive, and the liability of such metals as iron, lead, and zinc to corrosion is compensated for by their comparative cheapness. Iron is particularly prone to enter into chemical combination. Dry air has no effect on iron at ordinary temperatures, neither has water from which all dissolved air has been expelled. Water and air in conjunction, however, lead to the formation of ferric hydroxide, or iron rust. The rust forms slowly at first,

but is of such porous nature that it aids in bringing the moist air and the iron into closer contact, and the corrosion, once started, proceeds apace. Rusting is promoted by the presence of CO_2 , acid vapours, and ammoniacal salts, but is retarded by the presence of alkalis. In order to prevent corrosion, the metal may be covered by paint, oil, varnish, etc., or, to better effect, by a thin film of the black oxide of iron. In Becquerel's process for oxidising iron, the metal is made the positive electrode in a solution of sulphate of iron and sal ammoniac, the oxide being deposited as the result of electro-chemical action. In Barff's process the iron, heated to redness, is exposed to superheated steam at a temperature of 650° , the oxide being formed by decomposition of the water vapour. For cooking utensils, etc., iron is often covered with a plating of tin, zinc, or nickel. The plating should be continuous, as an attack of rust at one spot quickly spreads to other parts. Water-pipes are protected from rust by being plunged while at a red heat into a mixture of tar, pitch, and linseed oil. Rusting in boilers is usually the effect of the oxygen dissolved in the water, and may be to some extent avoided by turning the air expelled from the heated water into the steam space directly, without allowing it to come into contact with the under-water portion of the boiler. Zinc slabs are now fitted into some boilers so as to set up galvanic action in which the zinc, as negative plate, dissolves, while the iron, as positive plate, is unaffected. In bridges and other steel structures, the prevention of corrosion is a matter concerning public safety. The best method recognised is to paint after thorough cleaning. The whole surface is first examined for rust and scales, because the hydroxide would be produced underneath the paint if the process had once started. A dressing of boiled linseed is then applied to promote the adherence of the paint. Red lead is used for the first coat, and every riveted surface should be painted before the parts are put together. Finally the whole structure receives a coat of red iron oxide paint, which should be renewed at least once in every three years. Iron-work below water, as the pillars of piers, should be embedded in concrete.

The corrosion of other metals does not usually affect the strength of structures much, but in some cases it has poisonous effects. Drinking-water is often stored in lead-lined cisterns and conveyed in lead pipes. Certain salts, particularly those of ammonia, promote the formation of lead hydroxide, a soluble salt. The

solution usually proceeds slowly, but as the effects of lead poisoning are cumulative, it should be attended to where it is suspected.

Copper combines with acetic acid to form verdigris. It may therefore give rise to poisoning if vegetable substances are allowed to ferment in copper utensils. It is probable, however, that many cases of so-called copper poisoning are due to ptomaines, as the formation of sufficient verdigris to cause serious poisoning argues uncleanliness out of the ordinary.

Corrosive Sublimate, Mercuric Chloride (HgCl_2), is formed by passing chlorine over heated mercury. It is prepared on a large scale by heating a mixture of mercuric sulphate and common salt. It sublimes as a white mass, dissolves in water, readily melts, and volatilises unchanged. It dissolves without decomposition in sulphuric and nitric acids. It is a violent poison, the best antidote to which is the white of an egg or albumen, since it forms an insoluble compound with albumen. Because of its strong antiseptic properties it is largely used by taxidermists.

Corrugated Metal. Iron and other metals are corrugated in order that their rigidity and power to resist buckling may be increased. It is done by means of pairs of ridged rollers through which the metal is passed. Its most extensive use probably is in galvanised iron, i.e. zinc-plated iron, for roofs of buildings. The principle is of great value mechanically, as, for example, in flues of boilers, where the corrugation adds to the strength and increases the heating surface, while it is further used as flooring for bridges.

Corrupt Practices Act, *see* BRIBERY and ELECTIONS.

Corry, a tn. in Erie co., Pennsylvania, U.S.A., 37 m. S.E. of Erie, in a natural oil and gas district. The chief trade is in steel, lumber, flour, leather, and bricks. Pop. 7228.

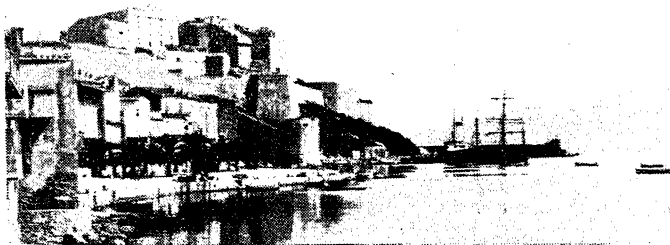
Corsairs, pirates of the Middle Ages. They plundered ships of their own or any other nationality, their one object being to procure booty. After the discovery of America, the Mediterranean, and the Atlantic Ocean, even as far N. as Iceland, especially became infested by them. The richly laden ships from the Indies were the especial prey of the Moors in revenge for their persecution by the Spaniards in Spain. They built citadels in Algiers, Tunis, and Tripoli, and produced great leaders like Khair ed-Din (Barbarossa), Uruch, and Drajut. Turkish C. waged war upon the vessels of Christian nations. In course

of time that of C. became a recognised calling, and a sovereign would sometimes call in their aid in time of war. This they sold and retained a large portion of the profits. Many attempts to suppress the C. were made by Christian govts. in the interests of their trade. But only at the Congress of Paris in 1856 were the powers able to come to an agreement, and even then the U.S.A. and Mexico would give no formal undertaking. The U.S.A. and Spain did not revive the custom during the war of 1898.

Corseul, a tn. in Côtes-du-Nord, France. It is situated to the N.W. of Dinan, and is the site of many ruins, among them a Rom. temple and other Rom. remains. Pop. about 2530.

Corsham, a tn. in Wiltshire, England, $3\frac{1}{2}$ m. from Chippenham; with an anct. church, and extensive quarries of Bath stone and the anct. mansion of Lord Methuen called Corsham Court. Pop. 3940.

worms, are the chief industries. The chief exports are wool, wood, wheat, wine, cork, tobacco, silk-worms, oranges, etc. In the inaccessible parts of the mountains live a peculiar breed of sheep, called 'moufflons,' and in the E. parts wild boars and stags are found; the latter are exceedingly scarce. There are mines of anthracite, antimony, copper, and silver lead, also valuable stone, such as alabaster, jasper, marble, porphyry, red and blue granite. At Guagno, Pardina, Guitera, and Orezza there are mineral springs. The manufactures are not of much importance, consisting chiefly of the preparation of preserved citrons, of macaroni, an extraction of acid from the chestnut bark, and the manufacture of cigars. The character of the Corsican is one of dignity and pride; he has much native courtesy, which is shown in the hospitality he extends to strangers, but to his fellow-countrymen he is



CITADEL OF CALVI, CORSICA

[The Times

Corsica (Fr. Corse), a large island in the Mediterranean, forming a dept. of France. It lies to the N. of Sardinia, from which it is divided by the Strait of Bonifacio. Its greatest length is 114 m., and breadth 52 m. It has several rivers, the Golo being the longest. The coast-line is rugged, and affords many bays and harbours, the most important being Porto, Sagone, Ajaccio, Valinco, St. Florent, Ile Rousse, and Calvi. The climate varies from warmth in the lowlands to extreme cold in the mountain regions, snow lying six months of the year on the highest summits. The soil is very fertile, but lack of enterprise in the inhabitants makes agriculture backward. The uncultivated districts are covered with a dense growth of arbutus, thorn, myrtle, and broom, known as the 'maquis.' The culture of fruit, the vine, citrons, and olives, vegetables, and tobacco, also the rearing of sheep, goats, and silk-

relentless when once roused, but the custom of the vendetta has died out. The C. peasant is invariably a small landowner, but he is generally too proud and too idle to work, and the women in consequence are often prematurely old-looking. Italians, however, from the Apennines come over in gangs and do part of the hard work and then return home. There is nothing commonplace in C. scenery. It is full of freshness and novelty. Here is a corner of Algeria, there one of Italy, of Greece, of Provence. The pop. is 290,000. The original inhabitants of C. were probably Ligurian, and the first civilised people who established themselves there were Phœceans of Ionia, who landed about 560 B.C., and founded the town of Alalia. At the end of the sixth century these people were driven out by the Etruscans, who in their turn had to make way for the Carthaginians, and these again were followed by the

Roms. In time the Genoese came into possession, who surrendered it to the Fr., being unable to subdue the Corsicans who had risen under General Paoli. Britain was appealed to for assistance, and in 1794, after hard fighting, C. offered the sovereignty to King George III. of England. British rule lasted for two years, then C. passed once more into the hands of France, and since the settlement of 1815 they have remained united. *An Account of Corsica*, by J. Boswell, appeared in 1768. C. is divided into five arrondissements, Ajaccio, Bastia, Calvi, Corte, and Sartène. The principal and capital town is Ajaccio, the seat of the bishop of C. and the birthplace of Napoleon.

Corsicana, the cap. of Navarro co., Texas, U.S.A., on the Houston and Texas Central and the St. Louis S.-W. railroads. It is a trading centre for cotton, wool, oil, and agricultural produce. Pop. 15,202.

Corsite, a variety of diorite (*g.v.*) found near Ajaccio in Corsica; known also as Napoleonite. It forms a beautiful ornamental stone on cutting and polishing, and is composed of anorthite feldspar, hornblende, and a little quartz.

Corslet, a kind of cuirass or breast-plate used to protect the body by soldiers in the sixteenth and seventeenth centuries. It was made of leather or of fine light steel chain.

Corso, an Italian word, meaning race or race-course, used alike of a slow procession of handsomely decorated equipages, and of the mad gallop of a frightened riderless horse. The word has been given to various streets, generally the main street, in some Italian tns., through which processions frequently take place. The best known is the C. (anct. Via Flaminia) in Rome, which is the scene of the famous carnival.

Corsen, Wilhelm Paul (1820-75), a Ger. classical scholar and philologist. In 1858-59 he won the prize, awarded by the Royal Prussian Academy of Sciences, for a thesis on Latin pronunciation and accent, with his *Ueber Aussprache, Volkstümlichkeit, und Betonung der Lateinischen Sprache*. Among his other works are: *Kritische Beiträge zur Lat. Formenlehre*, 1863; *Kritische Nachrichten zur Lat. Formenlehre*, 1866; and *Ueber die Sprache der Etrusker*, 2 vols., 1874-75.

Cort, Cornelis (1536-78), a Dutch designer and engraver. He studied engraving with Hieronymus Cock, and about 1565 he went to Venice and worked for Titian, executing copper-plates of 'St Jerome in the Desert,' 'Prometheus,' 'The Magdalen,' and others. At Rome he

founded a famous school of engraving. By his art he much increased the circulation of the works of Raphael, Titian, Clovio, Muziano, Baroccio, and other painters.

Cort, Henry (1740-1800), an Eng. iron master, who invented a process, called 'puddling,' of purifying iron, a process which has been superseded by the invention of Bessemer steel.

Cortazar, a tn. of Mexico, in the state of Guanajuato. Pop. 9000.

Cortelyou, George Bruce, b. New York City, July 26, 1862, studied in the State Normal School of Massachusetts and Georgetown University. He began as a law reporter and then became stenographer and executive clerk to President Cleveland in the White House. In 1898 President McKinley made him his assistant private secretary, and private secretary in 1900. When Theodore Roosevelt became President he retained C. in this position until 1905, when he gave him the cabinet post of Postmaster-General. In 1907 he made him Secretary of the Treasury. He has been President of the Consolidated Gas Company of New York City since 1909.

Corté, a tn. in Central Corsica, situated on a steep rock which overhangs the Tavignano and the Restonica. Marble is found in the neighbourhood, and there is active trade in wine and timber. It is the centre of a great variety of excursions. Pop. 5270.

Cortés, the name given in Spain and Portugal to the representative assembly of the nation. Formerly there were different C. representing various districts of Spain, the chief being the C. of Castile and that of Aragon, each with its own constitution, which was frequently modified. During the Fr. invasion under Bonaparte, it framed a new constitution, known as the 'Constitution of 1812.' See CONSTITUTION—Spain.

Cortés, Hernan or Hernando (1485-1547), the conqueror of Mexico. He was b. at Medellín, a village of Estramadura in Spain, and was first sent to study law at Salamanca. His high spirits and love of adventure led him westwards, so that in 1504 he sailed for Santa Domingo to join his relative, Ovando, Governor of Hispaniola. In 1511 he distinguished himself under Velasquez in his expedition for the conquest of Cuba, and subsequently became Alcalde in Santiago. In 1518 C. was chosen by Velasquez to command an expedition into the interior of New Spain (Mexico), which had just been discovered by Grijalva. He set sail on Nov. 18 with a fleet of seven vessels

His architectural works include the façade of Santa Maria in Via Lata, and the church of San Martino (Rome), in which he was buried.

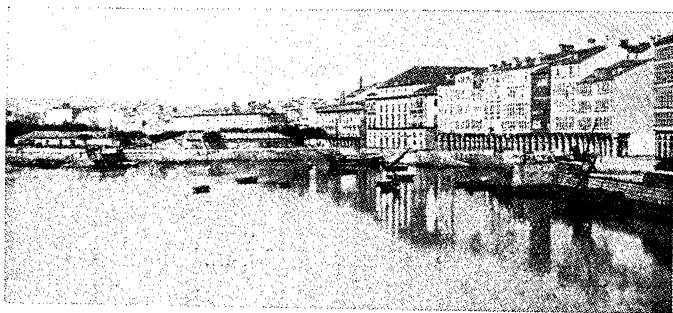
Corumba, a tn. and fortress of Brazil, in the prov. of Matto Grosso, on the r. b. of the R. Paraguay. It is an important trading centre and there are very large deposits of manganese. Pop. 8,500.

Coruña, La (Fr. La Corogne, Eng. The Groyne), the cap. of the prov. of Corunna in Spain, situated on the Bay of Corunna. The tn. consists of an upper and lower part. The former contains the anct. buildings, and is still surrounded by its old walls and ramparts, but the latter, which started only as a little fishing village, known as Pescaderia, has long ago outgrown it. The harbour lies on the E., is very commodious, and is pro-

system. The sapphire, oriental ruby, oriental topaz, oriental emerald, and oriental amethyst are all forms of C., although the name is usually reserved for the coarser specimens. The precious forms, of course, owe their value to the lustre of their polished surfaces, and their beautiful colours. The ordinary forms are dull in appearance, however, but they vary in colour as do the precious ones; being green, blue, and red, inclining to grey. Emery is an impure form of C. containing oxide of iron. C. is used for cutting and polishing all gems except the diamond, which is too hard for it.

Corvallis, a tn. in Oregon, U.S.A., seat of the State Agricultural College. Pop. 5752.

Corvée, a term applied to unpaid and forced labour paid by a tenant



LA CORUÑA

ected by the forts of San Diego and San Antonio. Many foreign boats call in here on their way to S. America. A state tobacco factory is one of the chief industries, and the herring and sardine fisheries give employment to many of the natives. The exports include agricultural produce, wine, and fish, while the imports are chiefly coal and manufactured goods. The tn. possesses two hospitals, a school of navigation, and cavalry and infantry barracks. C. was probably at one time a Phœnician settlement. In 1588 the Spanish Armada took shelter on its way to England in the harbour, and in 1598 the tn. was burnt by the Eng. under Drake and Norris. There is a monument erected to Sir John Moore, who fell here in 1809. Pop. 63,600.

Corundum, an aluminium ore, consisting solely of the oxide, Al_2O_3 . It possesses a high sp. gr., and is only inferior to the diamond in hardness. It crystallises in the hexagonal

to his lord, or by subjects to a state. The system of unpaid labour dates from the earliest times, and was fully developed in the Republic of Rome. Instead of paying taxes, the citizens performed *operæ publicæ*, which consisted chiefly of keeping roads and bridges in a state of good repair. The Rom. landlords could also demand free labour on their estates for a certain number of days from their tenants or *coloni*. The freemen also were under certain obligations as a condition of their freed state, and their *operæ officiales* generally consisted of unpaid work on their landlord's estate. In the Middle Ages, the C. became a recognised part of the feudal system. The fixed services that the serf was obliged to pay regularly were called *operæ rigæ*. Those that were only demanded in times of exceptional stress were called *operæ corrugatæ*, i.e. services or works requisitioned, from Lat. *rogare*, to request. This term became

corrupted into *coroata*, and later *corveie*, and finally developed into the present form *C.*, which became the general term for all such unpaid labour. The tenants and serfs performed certain kinds of personal labour, such as working in the fields, threshing corn, etc., in payment or partial payment of rent, small allotments, called *mansî*, being distributed among them. As well as this, they performed public services, such as repairing high roads, bridges, churches, and castles, entertaining messengers, and carrying despatches, as a sign of fealty to their feudal lord. *C.* could also include conscription, for in time of war they were enlisted in their lord's army. *C.* existed in France till the time of the Revolution, of which it may be said to have been a cause. It has been revised (1824, 1836, and 1871) under the name of *prestation*, when it was enacted that every able-bodied man is responsible for the condition of his local roads, and must give three days' labour or its equivalent in money to keep them in repair. *C.* has been from the earliest times used as a means of irrigating the canals and reaping the harvest. It is thought that the great pyramids were probably built by forced labour. By this means the Nile barrage above Cairo was constructed (1841-67), but *C.* labour was abolished under British rule in 1891. Consult Fustel de Coulanges, *Histoire des Institutions Politiques de l'Ancienne France*.

Corvei, or Korvey, a famous Benedictine abbey, near Hörter, Westphalia, situated on the R. Weser. It was founded by the monks from Corbie, in France, in the ninth century, under the patronage of the Emperor Louis de Débonnaire. Its abbots were chosen from the princes of the Holy Rom. empire. There is an interesting church dating from the seventeenth century, and a valuable library, containing over 150,000 volumes. In 1811 the library was given to Marburg University. The abbey was under the direct supervision of the Pope until 1793, when Pope Pius VI. converted it into a bishopric. It was secularised in 1803, and was held successively by Nassau, Orange, Westphalia, and Prussia. At present it is the palace of the Prince of Ratisbon.

Corvette (Lat. *corbita*, a slow ship of burden, from *corbis*, basket), a particular kind of sailing man-of-war, having three square-rigged masts and carrying her broadside guns under a covered deck.

Corvinus, Matthias, see MATTHIAS CORVINUS.

Corvisart-Desmarte, Jean Nicolas,

Baron de (1755-1831), a Fr. physician, who is remembered especially for his contribution towards the knowledge of percussion. He wrote extensively on medical subjects, his works including: *Aphorismes sur la Connaissance et la Curation des Fièvre*, 1799-1801; and *Nouvelle Méthode pour Reconnaître les Maladies Internes de la Poitrine par la percussion de cette Cavité*, 1808.

Corvus, a member of the family of Corvidæ, such as the rook, raven, jackdaw, and various kinds of crow.

Corvus (Raven or Crow), an anct. S. constellation described by Ptolemy (second century A.D.). It consists of four principal stars of the second and third magnitude, and is situated below Virgo, between Libra and Crater. The constellation is sometimes called 'Hydra et Corvus,' as strictly it contains part of the body of Hydra. Aratus (c. 270 B.C.) included Hydra, Crater, and *C.* in a single constellation.

Corvus, Marcus Valerius (c. 370-c. 270 B.C.), a soldier famous in early Rom. history. He obtained his surname, *C.*, a 'raven,' after fighting in single combat with a Gaul, 349 B.C., on which occasion he was assisted by a raven which settled on his helmet and flapped its wings into the face of his foe. He was twice dictator (342 and 301), and between 348 and 299 was consul six times.

Corwen, a par. and market tn., a favourite resort for tourists and anglers, on the r. b. of the Dee, Merionethshire, Wales, 9 m. W.N.W. of Llangollen. Pop. 2856.

Corwin, Thomas (1794-1865), an American statesman, b. in Bourbon co., Ky.; was Governor of Ohio (1840-42), and served in the U.S.A. Senate. In 1864 he was Minister to Mexico. He was chairman (1860) of the Committee of Thirty-three to consider measures for reconciling the North and South.

Coryate, or Coryatt, Thomas (1577-1617), an Eng. traveller, son of George C., a Latin verse writer, b. at Odombe, Somersetshire. He was educated at Westminster School and at Oxford, and became a court fool to James I. *Coryate's Crudities hastily gobbled up in Five Months' Travel* is an account of his travels on foot through France, Italy, Switzerland, Germany, and Holland, which began in 1608. He hung up the boots which he used on this tour in Odombe church. In 1612 he set out again and passed through Constantinople, Greece, Alexandria, Cairo, Jerusalem, Babylon, Lahore, and Agra, but d. at Surat. See Wood's *Athens Ozonienses*, ii.; McLehose's edition of the *Crudities*.

Corybantes (Gk. *Κορύβαντες*), the priests of Cybele or Rhea, in Phrygia, whose worship they celebrated by dancing and by performing wild, ecstatic orgies to the accompaniment of the drum and cymbal.

Corydon, co. seat of Harrison co., Indiana, U.S.A., on Indian Creek, 20 m. S.W. of Louisville, Ky.; manufs. wagons, building and lithographic stone. Pop. 2000.

Corygaun, or **Korigaun**, a tn. of British India, in the Bombay Presidency, on the Bhime, 16 m. N.E. of Poona. Here 800 of the E. I. Co.'s sepoy's under Capt. Staunton kept 25,000 Maharrattas under the command of the Peshwa himself in check on Jan. 1. 1818.

Corylus, a genus of Betulaceæ, contains seven well-known species, which grow in N. lands. *C. avellana* is the common hazel-nut found in Europe, Asia, and America; *C. colurna*, the Constantinople nut of Asia Minor; *C. rostrata*, the horned hazel-nut of the Carolinas. There are many varieties of *C. avellana* which yield the cob-nut or filberts used as dessert.

Corypha, a genus of tropical palms, contains six species with gigantic fan-shaped leaves. *C. umbraculifera*, the Tala or Talipot palm, is a native of Ceylon, which serves several useful purposes. The trunk reaches a height of 100 ft., and the leaves are 14 ft. broad and 18 ft. long; fans and umbrellas are made from the leaves, which are also used in thatching and employed as writing material; while the pith of the trunk furnishes a sort of flour from which bread is made. *C. talliera* is a stately species which inhabits Bengal and is known as the Tara or Talliera; the natives write on the leaves with a steel style.

Coryphæna, a genus of acanthopterygious fishes, commonly known as dolphins, represents the family *Coryphænidæ*, which is nearly related to the mackerel family. The species are large and brilliantly coloured, with hues of metallic yellow, blue, and silver; their bodies are elongated, compressed, and covered with small scales. In diet they are carnivorous and feed largely on flying fish. The length to which they usually attain is about 6 ft. *C. hippurus* inhabits the Mediterranean.

Coryphæus (Gk. *κορυφή*, head), the leader of a Gk. chorus. Hence the word is applied to any leader in the realm of science or art. At Oxford the word is used to denote the assistant of the choragus in the musical praxis, founded by Dr. Heather.

Corystes, a brachyurous crustacean, found in the seas of Europe. *C. Cassinellanus* is a crab commonly

seen on the shores of France and England, especially at Plymouth, and the carapace is marked like the face of a human being.

Coryza, catarrh of the mucous membrane lining the nasal passages, commonly called 'cold in the head.' See CATARRH.

Cosa, Juan de la (c. 1450-1510), a Spanish navigator and cartographer, thought to have been b. at Santona in Calabria, and d. at Tabasco. After having explored parts of the western coast of Africa, he accompanied Columbus on his famous voyage of discovery in 1492, acting as pilot. He held the same position under Alonzo de Hojeda in 1499, and in 1504 himself lead an expedition in northern America, and in 1509 was appointed alguazil mayor over Uraba (Darien). He was killed in the following year during a skirmish between the Spaniards and the Indians. He executed two very interesting coloured maps on vellum, one marking the Spanish dominions acquired in Africa in 1500, and the other showing the lands discovered by Columbus and his successors.

Cosack, Konrad (b. 1855), a jurist, born in Königsberg. He lectured on law at the university of Berlin (1882-85), at Gressin (1893), and at Bonn (1896). His books include *Der Besitz des Erben*, *Lehrbuch des Handelsrecht*, *Lehrbuch des deutschen bürgerlichen Rechts auf der Grundlage des Bürgerl. Gesetzbuchs* (1897-1904).

Cosbuc, George. 1866-1918), a Roumanian poet, b. in Transylvania. He wrote translations of the *Æneid* and of Byron's *Mazeppa*. He is chiefly admired for his lyrics, which appeared in *Balade și Idile*, 1893, and *Fire de Tort*, 1896.

Coscinomancy (Gk. *κόσκινον*), divination by means of a sieve and a pair of shears, employed in ancient times for the discovery of thieves and other suspected persons. The sieve was supposed to tremble or move round when the name of the guilty person was mentioned.

Cosecant, **Cosine**, **Cotangent**, see TRIGONOMETRY.

Coseguina, or **Conseguina**, a volcano of Nicaragua, near the Gulf of Fonseca, not far from the Pacific Ocean. Alt. 3830 ft. The eruption of 1835 was one of the greatest ever known in geological history.

Cosel, or **Kosel**, a tn. of Prussia, in Silesia, on the R. Oder, 26 m. S.S.E. of Oppeln. It has flour mills and a petroleum refinery; celluloid is its chief manufacture. Pop. 8200.

Coseley, a suburb of Wolverhampton, Staffordshire, England, on the L.M.S. In the vicinity there are coal and iron mines. Pop. 24,213.

Cosenz, Enrico (1812-98), an Italian soldier and politician, b. at Gaeta. He fought against the Austrians in Upper Italy (1848), distinguishing himself at the defence of Venice. On its surrender, he took refuge in Turin, but returned to join one of Garibaldi's regiments, 'The Hunters of the Alps,' of which he became colonel in 1859. Under the dictatorship of Garibaldi he was appointed Minister of War, and commanded an attack on Rome in 1870. From 1881 till 1893 he was chief of the general staff of the Italian army.

Cosenza (anct. Consentia, a city of the Bruttii). (1) A tn. and archiepiscopal see of the prov. of Calabria, S. Italy, situated at the foot of the La Sila, 33 m. N.W. of Catanzaro, between the Crati and the Busento, and commanded by an old castle. The old part of the town contains steep, narrow streets, and is most unhealthy, while the modern part has good buildings and thoroughfares. The Gothic cathedral is on the site of an older one which was destroyed by earthquake, 1184. There are two academies of science, and the manufactures are of steel and iron, also pottery. Pop. 27,048. (2) A province of Calabria, S. Italy, which includes the N. part of the Calabrian peninsula between the Gulf of Taranto and the Tyrrhenian Sea. It is mostly mountainous. The mountains are densely covered with forests of oak, chestnut, and beeches, and tin, lead, silver, and other minerals are found there. The chief products are rice, corn, olive oil, wine, fruits, liquorice, rock-salts, silks, and cotton. It has been often mentioned by classical authors, e.g. by Varro, who speaks of its apple trees fruiting twice a year, and by Pliny, who praises its wine.

Cosgrave, William Thomas, President of the Executive Council of the Irish Free State since 1922, was b. in 1880, son of Thomas Cosgrave, town councillor and Poor Law Guardian, Dublin. He was educated at the Christian Brothers' School, and engaged in the grocery trade; became a member of the Dublin Corporation in 1909, and from 1916 till 1922, when he retired from the Corporation, was chairman of its finance committee. In 1913 he joined the Irish Volunteers, and sided with the rebellious section in Aug. 1914. He was in the Easter rising in Dublin in 1916; and, on capture, was detained in Frongoch Camp, Merioneth, till Christmas. In 1917 he was elected Sinn Féin M.P. for Kilkenny City; and from Dec. 1918 till 1922 he was M.P. for the N. div. of Kilkenny county. To the first legalised Dail Eireann he was elected in 1922 for cos. Carlow and

Kilkenny, which he represented till 1927; but from 1919 he has been of those members of parliament who constituted themselves the revolutionary Dail, and he held the post of Minister for Local Gov. in the revolutionary Cabinet—consequently he was among the proscribed in the time of the Black-and-Tans. From Jan. 1922 he was Minister for Local Gov. in the new Irish Free State set up by



[Topical Press

PRESIDENT COSGRAVE

the Treaty. He acted as deputy for President Griffith during the absence of the latter in London in 1922; and, after Griffith's sudden death in Aug. and the assassination of his successor Michael Collins (*q.v.*) the same month, C. was chosen President. In 1923 he represented the Irish Free State at the League of Nations Assembly and at the Imperial Conference. He became member for Cork in the Dail elected 1927; and in 1928 he signed the Kellogg Pact and visited U.S.A., where he was received by the President, and Canada.

Coshery, or Coshering, was the anct. feudal right of Ireland of a chief to quarter himself and his retainers on his tenantry at his own pleasure.

Coshocton, a city and co. seat of C. co., Ohio, U.S.A. It ships coal, grain, flour, livestock and wool, and manufactures paper, glass, advertising novelties, etc. Pop. 10,908.

Cosimo, Piero di (1462–1521), an Italian painter, b. at Florence. He was a pupil of Cosimo Rosselli, and afterwards the master of Andrea del Sarto. Leonarda exercised great influence over him, but he was somewhat eccentric, fantastic in design, and his figures wanting in accurate proportions; his colours were often admirable. His masterpiece was his 'Conception,' now in a gallery in Florence, where are also four mythological pictures, and a 'Madonna.' His 'Persens and Andromeda' is full of fine detail. Some of his other works are 'Death of Procris,' in the National Gallery; 'Coronation of the Virgin,' in the Louvre, and 'Christ and the Baptist,' in Berlin.

Cosin, John (1594–1672), Bishop of Durham. He first became known as an author in 1627, when he published his *Collection of Private Devotions*. In 1634 he was made master of Peterhouse, Cambridge; in 1640 vice-chancellor of the university, and dean of Peterborough. For nineteen years he was an exile in France, being denounced by the Puritans for his extreme theological views, though opposed to popery, and was deprived of his benefices. But at the Restoration, he recovered his preferments, and became Bishop of Durham, 1660.

Cöslin, see **KÖSLIN**.

Cosmas Indicopleustes, a merchant and traveller of Alexandria, who lived during the sixth century. During his early life he visited Abyssinia, W. India, Ceylon, and other places. He eventually became a monk, and during his seclusion wrote in Gk. a work in twelve books called *Topographia*, 548. This was translated in 1897 into Eng. by the Hakluyt Society. In the work he propounds absurd theories as to the shape of the earth, denying that it is round, and upholding the scriptural account of the world. Some people think he was a Nestorian.

Cosmas and Damian, the patron saints of physicians, were born in Arabia in the third century and educated there. They are supposed to have practised in Sicily, but were tortured and killed under the persecution of Diocletian in 303. In the eleventh century an order of knights was founded, using the names of C. and D.

Cosmetics (Gk. κοσμέω, I adorn), the word applied to all chemical preparations used for improving the appearance of skin and hair. Face powders consist of zinc oxide, French chalk, and orris root, finely powdered and perfumed. Some C. are comparatively harmless, while others are more or less poisonous, and dangerous to use. Hair C. are composed of lard

and white beeswax, to which is added a suitable perfume.

Cosmo I. (d. 1574), Duke of Florence, afterwards Grand Duke of Tuscany, was the son of Giovanni de Medici. The elder branch of the house of Medici had become extinct, and C., who was descended from a collateral branch of the house, was proposed as successor and supported by the Emperor Charles V. C. defeated his enemies at Montemurlo and became absolute lord of Florence. He was a harsh and cruel ruler, but succeeded in establishing the independence of Tuscany. In 1552 he added Piombino and the island of Elba to his estates, and in 1555 captured Siena, which, however, was allowed to retain its municipal institutions. In this way he united Tuscany under one government, and in 1569 he received from Pius V. the title of grand duke. C. was a patron of art and literature, and founded the Florentine Academy and the Academy del Disegno, and restored the university of Pisa.

Cosmo de Medici, see **MEDICI**.

Cosmogony, a theory of the origin of the universe and its inhabitants, and in all races except among the very lowest type of savage some theory is found in their mythology or theology. There is a surprising variety in the various explanations, the only common ground seeming to be that water is usually regarded as the starting-point, from the depths of which the land has been drawn up by some supernatural power. Among other conceptions may be mentioned that of the Egyptians who conceived of a world egg, and the Hindu tortoise supporting elephants supporting the world. Then the Polynesian conception involved an air god, Tangaloa, hovering over the waters. But in the Babylonian Cs. deciphered by George Smith, and also perpetuated in the Gk. of Berosus, we arrive at startling similarities to the creation story as told in Genesis i. The Zoroastrian conception involved a personal deity creating at his own free will. Again, one of the old Phœnician Cs. refers to organic matter as being due to spontaneous emanations. Modern cosmogonists are divided naturally into two great camps, according as they are Theists or Pantheists. A belief in Theism almost inevitably leads to a C. which explains the creation of matter and order and life, as being the outcome of the omniscient Will. Pantheism, on the other hand, will lead to a belief in the universe as being itself the Deity, and this will lead to a belief in matter as having existed from eternity. Apart from these Cs., the problem, as narrowed down to the

origin of our own globe, and its system, and similar systems, has occupied men's minds considerably. Laplace, on observing the motion and relationship of the planets, was able to lay down the foundations of the Nebular Theory (*q.v.*) for which Herschel collected so many proofs, and of which physicists are not altogether sceptical even to-day. Of course, another theory is that the earth has originated from meteorites. Thus, in so far as it touches modern science at all, it can be seen that the tendency would be to trace backwards the causes and effects thus reaching back to the early stages in cosmic growth, but not to the actual creation itself. This after all was the standpoint of the old philosophies, for Plato recognised a personal Creator, and Aristotle postulated an uncaused cause. Democritus, on the other hand, in strange similarity to some modern scientists, conceived a self-created universe, which sprung from a fortuitous concourse of atoms. See ADAM, CREATION, MATERIALISM, THEOGONY, HEGEL, and the various religions.

Cosquin, Emmanuel (1841-1922), a French folklorist and lawyer, native of Vitry-le-François. C. is chiefly famous for his writings on folklore, which appeared in *Romania*, and were published in book form, *Contes Populaires de Lorraine*.

Cossa, Luigi (1831-96), an Italian economist, who, in 1858, was appointed professor of political economy at Pavia. His books are *Scienza delle finanze* (Eng. trans. 1888), *Guida allo studio dell' economia politica* (Eng. trans. 1880), *Introduzione allo studio dell' economia politica* (Eng. trans. by Dyer, 1893), and *Saggi di economia politica*.

Cossa, Pietro (1834-81), an Italian dramatist, b. in Rome. He taught in a school at Leghorn, and wrote *Mario, Sordello, Monaldeschi, Puschin*. His tragedy, *Nero* (Eng. trans. by F. E. Trollope, 1870), was acted with success, and after this he continued to write classical plays, such as *Cleopatra, Messalina, Cecilia, Paulo e il suo Secolo*, C.'s own favourite comedy, *Teatro Poetico* (in 7 vols.), and a volume of lyrics. See *Life* by Trevisani; and Arcari, *Di P. Cossa e del Dramma in Italia*.

Cossacks (Russian *Kozak, Kazak*), a name which seems to have had various meanings assigned to it, among them 'an armed man,' or a 'freebooter,' but came to designate a certain section of the Russians who were invested with military powers. They seemed to be a people of mixed origin, partly Tartars and Poles, but principally Russian. The first seem to have come into prominence during

mediaeval times, and they were employed by the rulers of Poland to defend their frontiers, as they were a warlike people and quite suitable for the task. The C. community was divided into ten *voiskos*, and the *stanitsa*, or village, is the centre of their community life. All men were compelled to military service, which lasted for twenty years or longer. They were thus able to form themselves into military bands which were at the service of the Russian government when needed. Their education stood at a high level as compared with that of the other Russians. Their chief occupation was agriculture, though they were also engaged in cattle and horse breeding. The Don Cossacks, one of the two chief branches of this people, settled first in the land round the R. Don and afterwards round the Dnieper, these being known as the Zaporogian C. Later on other sections of these C. were formed—from the sixteenth century onwards—among them those who settled in the Kuban Valley, those of the Volga, the Ural R., and Siberia. The Little Russian C., or the C. of the Ukraine, were regularly established by Stephen Bathory, king of Poland, during the latter half of the sixteenth century. During the next century, however, they were unjustly treated by the Poles, and resolved to rise against this tyranny. This they accordingly did, and their leader Chmielnicki organised the great rising of 1648. He was at first entirely successful, but eventually put himself and his C. followers under the protection of the Czar of Russia. The C. population numbers considerably over 2,000,000. See R. von Erckert, *Der Ursprung der Kosaken, vorzüglich nach neuesten russischen Quellen*, 1882, and Anton Heinrich Springer, *Die Kosaken*, 1877. During the Great War the Cossacks distinguished themselves by their customary élan and their general character was good throughout the war. In the heavy fighting on the Styr and about Kovel in 1915 the C. rendered good service for the Allies, and one regiment was specially mentioned in the Order of the day. The Kuban Cossacks also distinguished themselves on the Armenian front by capturing a whole Turkish regiment together with its stores and records. In May 1917 a detachment of Cossacks under Sotnik Gamaly was sent by General Baratoff to join the British forces in Palestine, via Kermanshah, a mission which it accomplished. After the overthrow of the Czar the C. became a power to be reckoned with and republican agitators were cautious in their dealings with them. At the

Congress of Workmen's Councils in 1917 resolutions were passed for the creation of a special Cossack army and for the granting to all Cossacks the lands which happened to be in their hands. When Kerensky (*q.v.*) felt that his power was declining he appealed to the C. for support against the Bolsheviks, but the C. refused because he had previously treated them with contempt. This led to his downfall. The Don territory was the theatre of campaigns in 1917 and 1918 between the Bolsheviks and the Volunteer army of Alexeiev (*q.v.*) and Kornilov. Public opinion on the Don, sedulously fomented by Ger. agents, was drifting strongly to the 'Left,' and Kaledin, the Hetman of the D. Cossacks, though sympathetic towards the Whites or Volunteers, could do little to help the latter. The fever of revolution spread among the Cossacks, and there was a tragedy in every family where the children were Bolshevik and the fathers counter-revolutionaries. With the advance of the Bolsheviks on Novochoerkassk, the situation of the Don seemed hopeless, and Kaledin, having lost trust in his Cossacks, shot himself. But the faith of the Volunteer units of the Whites in their leaders Kornilov and Alexeiev remained unshaken by misfortune, and they now began from this part of the country their campaign for the 'salvation and regeneration of Russia,' the campaign commencing with Kornilov's march on the Kuban (Feb. to March, 1917). But Kuban had now become predominantly Bolshevik, the Kuban Gov. had taken refuge in the hills, and Kornilov found all manner of difficulties in his projected attack on Ekaterinodar. When the attack did take place, Kornilov was killed by a shell which burst in the room of a house in which he had his headquarters. The Whites thereafter had to march back to the Don, and, in the interim, made all preparations for reorganising their forces for a second march on the Kuban. The army was increased by Volunteers from 12,000 to 100,000, and though the Bolsheviks were now all-powerful in Odessa, the Crimea and the Ukraine, and their Navy was concentrated on Novrossiisk, so great was the enthusiasm of the Whites or Volunteer Army, under the spell of the wizardry of the posthumous fame of Kornilov, that in their second advance on the Kuban they eventually captured Ekaterinodar (Aug. 2). A series of engagements followed later at Armavir in Oct., but enough had now been accomplished by the Volunteer Army in the Don territory

to make the issue as between the Whites and the Reds throughout Russia an open one for some time. The sequel came only in 1919 with the death of Kolchak and the defeat of Denikin (*see also* DENIKIN, KOLCHAK, KORNILOV). Although the C. were not in favour of Bolshevism, they soon gave up their anti-Bolshevik policy and returned to their homes. The territory of the Cossacks of the Don was declared a Republic in 1918.

Cosseir, or Kosseir, a seaport town, situated on the W. coast of the Red Sea in Upper Egypt. It possesses a citadel, and goods from Egypt to Arabia, or *vice versa*, are sent through this town. Pop. about 3000.

Cossimbazar, *see* KASIMBAZAR.

Cossus, a genus of lepidopterous insects, is typical of the family Cossidae, the goat-moths or carpenter-worms. The larva is a wood-borer, and the pupa is enclosed in a cocoon. *C. ligniperda* is one of the largest of British moths, measuring from 3 to 4 in. from tip to tip of the expanded wings. The insect resides in and feeds upon the wood of the oak, poplar, aspen, and willow, and the caterpillar emits a very disagreeable odour.

Cossus, Servius Cornelius, was consul at Rome in 428 B.C. He killed the Veian king, Lar Tolumnius, in single combat, in this way winning the *spolia opima*, namely, 'chief spoils,' which could only be won by a Rom. general from the leader of the foe.

Costa, Claudio-Manoel Da (1729-90), a Brazilian poet, native of Marianno, Minas Geraes. His two volumes of poetry, some written in Portuguese and Italian, gained for him a reputation. The poem *Villa Rica* is noted for its historical matter. His intimacy with Ribeiro caused him to be implicated in the political agitation of 1789, and he was imprisoned at Villa Rica, where he *d.*, as is supposed, by poison. *See* Romero, *Historia da Literatura Brasileira*.

Costa, Isaac Da, *see* DA COSTA, ISAAC.

Costa, Lorenzo (1460-1535), an Italian painter, native of Ferrara. He belongs to the Bolognese school. His celebrated picture 'Madonna and Child,' besides frescoes, are in the Bentivoglio chapel in the San Giacomo Maggiore. His pupil, Francis, was much influenced by him, and both worked in the chapel of St. Cecilia. He went to Mantua in 1509, and was patronised by the Marquis Francesco Gonzago. Most of his best paintings are at Bologna; the 'Madonna and Child enthroned' hangs in the National Gallery, London. *See* Edward Hutton's *Crowe and Cavalcaselle's History of Painting in Italy*.

Costa, Sir Michael (1810-84), a musical conductor and composer, son of a Spaniard, b. in Naples. He came to England, conducted Zingarelli's *Cantata Sacra* in Birmingham (1829), and settled in London in the next year, when he produced *Kenilworth*. C. conducted at Covent Garden and at the Philharmonic concerts, besides at other musical festivals in the provinces. Although he was the greatest conductor of his time, his compositions are now forgotten. Some of C.'s works are *Ecco quel fiero istante*, *Alma*, *Don Carlos*, and *Eli and Naaman*.

Costanzo, Angelo di (1507-91), a Neapolitan historian and poet. b. at Naples. His most important work was his *Historia del Regno di Napoli, 1250-1459* (1581-82), which was written in clear style, and was the work of over thirty years.

Costa Rica, the most southern state of Central America, bounded on the N. by Nicaragua, on the E. by the Caribbean Sea, by Panama on the S.E. and S., and by the Pacific Ocean on the W. Its area is estimated at 23,000 sq. m. The Atlantic coast, with the exception of Port Limón, has few indentations, but along the Pacific there are the two large gulfs of Nicoya and Dulce. Across the country S.E. to N.W. extends the Sierra Talamancá, a continuation of the Cordillera of Chiriquí. Some of the peaks attain a great altitude, the highest being over 12,700 ft. There are a number of volcanoes, including Orosi (5200 ft.) and Poas (8670 ft.). The only active ones are Irazú (11,500 ft.) and Turrialba (10,900 ft.). The rivers are not useful for navigation, the chief being the Revantagón and Tárcoles. The San Juan partly separates C. R. from Nicaragua. The country is rich in minerals. Gold, silver, copper, zinc, nickel, lead, coal, mercury, and iron are found. The chief industry, however, is agriculture, the soil being fertile and the climate mild and temperate. Coffee is cultivated to a very large extent, and on the success of the crops depends largely the revenue of the country. Coffee forms 50 per cent. of the total exports, and in 1927 it was estimated at 16,154 metric tons. Bananas rank second in importance, forming about one-third of the total export trade, but since 1913 they have somewhat declined owing to the havoc caused by the 'Panama disease.' Vanilla and sarsaparilla are grown; sugar is still exported, but not in such great quantities; while cacao is rapidly increasing in importance. There is considerable trade in timber and cattle. In the wooded districts are found mahogany, india-

rubber, ebony, Brazil-wood, cedar and oak. The chief imports are motors, clothing materials, food products, cattle and leather, zinc, petroleum, and cement. C. R. was discovered by Columbus in 1493, and colonists probably settled in 1502 or 1530. Its political life, like that of many of its neighbouring states, has been unsettled. It formed a part of the captain-generalcy of Guatemala until 1821, when for two years it was connected with Mexico. From 1823-39 it formed part of the federal republic of the States of Central America. It was not till 1848 that C. R. was fully established as a republic. C. R. has been involved in several boundary disputes, the first of these, with Nicaragua, being settled by the President of the U.S.A. in 1888; and with Colombia, in 1921. The dispute with Panama was also settled in 1921, after Panama had entered and held the territory to which it laid claim; but diplomatic relations were not resumed until Oct. 1928. Internally C. R. has had a much more pacific history than most of the Central American states during recent years. In 1917, however, General Frederico Granados ousted Alfredo Gonzalez from the presidency and himself assumed office on April 11, 1917. President Wilson of the U.S.A. persistently refused to recognise his claims, and when C. R. followed the action of the States by breaking with Germany in May, 1918, he totally ignored the govt. as then formed. His opposition extended even to excluding representatives from C. R. to the League of Nations, but the state is now a member of the League. In 1919 Granados was obliged to give up the presidency, since when the office has been filled successively by Don Julio Acosta (May 8, 1920), Don Picardo Timinez (May 8, 1924), and Señor Cleto Gonzalez Viquez (May 8, 1928). Each President serves for a term of four years, aided by the seven Secretaries of State whom he appoints. The Constitutional Congress is the legislative body, consisting of forty-three deputies elected for four years, one half of whom retire at the end of every two years. Education is compulsory and the elementary schools are free. There are secondary schools for boys and girls at San José, a normal school at Heredia, and colleges at Alajuela and Cartago. The national religion is Roman Catholicism, but toleration is granted to all sects. The capital is San José, with a pop. of 51,459. The other important towns are Cartago (16,261), Limón (15,690), Heredia (10,763), Alajuela (8,611), Puntarenas (7848), and Liberia (7473). The total

pop. of C. R. is approximately 480,000.

Cost Accounting. Cost Accounting is the term applied to that system of accounting by which the cost of production or service rendered at any particular stage in the manufacture or part-manufacture of any commodity is ascertained. It differs from the ordinary system of accounting in that the latter simply gives the results of the business or section of the business as a whole, without attempting to dissect the cost of manufacture or service rendered at any particular period in the course of manufacture. The two systems are, however, usually worked concurrently by independent staffs, although to bring out the best of both systems some sort of liaison is necessary. The value of the C. A. system lies in the results of costs that are put on record, and so are always handy for reference for comparative purposes. It provides a safe check against wastage, either in material or time, and is a sure means of discovering that section of a business which is not pulling its weight. It would, of course, be impossible to formulate any system of C. A. that would be applicable to all businesses. Indeed it would be safe to assert that each large business, apart from fundamentals, has its own system, that system which has been found from experience to be best adapted to its own particular requirements. The cost of a product or job would be obtained from the following details:—

- (1) The prime cost, which would embrace cost of raw materials and wages.
- (2) Shop expenditure, which would embrace foremen's wages, power, plant, maintenance, etc.
- (3) Overhead charges, which would embrace cost of distribution and administrative charges.

Cost-book System, a system of partnership which obtains in various Cornish and Devonian mines. The system consists in a particular method of keeping the accounts and so managing the affairs of the partnership that the exact financial state of the concern can be readily ascertainable. A characteristic feature of companies worked on this principle is that a shareholder is entitled to retire if he choose at the periodical making up of the accounts, and so put an end to his further liability. The Stannaries Act provides that the cost-book, which contains an abstract of the working expenses and returns on sales, must be made up and laid before the shareholders once in every sixteen weeks. The process of formation of a cost-book company is by first obtaining a licence to search for

minerals; if ore is found, a lease is granted for a term of years, and then a meeting of the co-adventurers is called to decide on the constitution of the company. Cost-book companies may be registered under the Companies Act, 1908. A member of a cost-book company is at liberty to transfer his shares without obtaining the consent of the other members, and he may also insist on the company taking back his shares and paying him for them. A cost-book company, or rather partnership, is not dissolved by a member merely obtaining an account against the other members or by transferring his shares, or by the death or bankruptcy of any member. The interest of a deceased member devolves as personalty on his next of kin. Members or shareholders cannot, like ordinary partners, bind fellow members by any contract other than one for necessities required for the working of the mine in accordance with the custom of the locality. Cost-book mines are commonly managed by an agent of the shareholders, but such agent cannot make the members liable on a bill of exchange. The system of cost-keeping, or the 'systematic recording of costs,' is essentially a modern innovation in accountancy principles. Cost-records show what each contract or sale has contributed to the net result, i.e. they investigate the cost of all the components of a product right to their origin. It is often questioned whether in any given case it is necessary to know exactly what each job costs. But in all businesses having for their object the manufacture or production of commodities, the factory costs accounts should be kept in such a way as to enable the proprietor to estimate the cost of the article produced. This is especially important where the business consists in the execution of a single piece of work by contract, and in the case of businesses producing some one particular article, e.g. in collieries. In both these classes the general principles of cost-keeping are the same. To obtain the desired result the various heads over which the cost of performing the work is spread should be accurately subdivided. Cost-keeping also comprises the important matter of so keeping accounts of stores as to check deficiencies whether from waste or pilfering. This may best be done by only handing out stores upon written requisitions from particular departments. If this course is adopted the weekly or monthly total of the cost of each department may readily be posted to the debit of the cost account. See *Harmsworth*

Business Library (vols. i. and ii. *passim*).

Cost of Living.—Although the cost of living must be of prime importance to the majority of the populations of the different countries of the world, yet over normal periods the variation up or down is so gradual that it is only noticed by statisticians and political economists. But the advent of the Great War brought such a sudden rise in the price of all those commodities which are necessary to civilised life that the C. of L. became a matter of the most urgent concern to millions of wage-earners not only in the belligerent countries, but throughout the world. During the Great War and up till the present (1931) wages have been fixed for very large sections of the community on a C. of L. basis determined by the C. of L. index number issued by the Ministry of Labour. The index number compares the level of prices or the purchasing power of the money of one period with another. The year 1900 is often taken as the standard, but for practical purposes the year 1913, the year previous to the war, has been chosen by general consent. A C. of L. index number should embrace ordinary foodstuffs, rent, clothing, fuel and light and such miscellaneous items as would make up the budget of the average citizen. The index number of the standard year is said to be 100 and rises or falls at different periods are registered against this figure.

Costello, Louisa Stuart (1799–1870), an Eng. authoress and miniature painter. She is chiefly known for her works on travel, memoirs, and romances. Her principal books are *Songs of a Stranger*, *Specimens of the Early Poetry of France*, *A Pilgrimage to Auvergne*, *The Rose Garden of Persia*, *Anne of Brittany*, *The Queen Mother*, *Bearn and the Pyrenees*, and *Clara Fane*. See *Athenæum*, May 7, 1870.

Coster, Laurens Janszoon (c. 1370–1440), supposed by some to have been the inventor of movable types and therefore the precursor of printing, was b. at Haarlem. Junius, in his *Batavia*, states C.'s claim. Twenty years before Gutenberg he had the idea to carve out characters from cubes of wood, these he put together to form inscriptions to accompany engravings. Later on he used metal instead of wood. A dishonest workman, having stolen some of C.'s apparatus, took them to Mainz, where he set up a printing business, taking Gutenberg as partner. The problem as to who really was the inventor of printing has never been solved. Junius lived 100 years after C.'s

death. The rival claims of Gutenberg and of C. are set forth by Hessel in his *Haarlem, the Birthplace of Printing*, 1887; by Linde in *Geschichte der Erfindung der Buchdruckerkunst* (3 vols.), 1886; by Wyss in *Zentralblatt für Bibliothekswesen*, 1888.

Costigliole, a com. in Piedmont, in prov. of Alessandria, Italy, 8 m. S. of Asti, with silk industries. Pop. 8820.

Costin, Miron (1633–91), a Moldavian chronicler and politician. He held positions of political importance under Princes Rousset and Douca, but was an exile under the next sovereign, returning to Moldavia and becoming prefect on the ascent of the succeeding prince. He was assassinated. His principal works were a history of Moldavia from 1594 to 1662, *Letopisețul Teretî Moldovei*; the history of the first colonisation under Trajan, *Cartea peștra Descălecatul de'nainte a Teretî Moldovei*. See his collected works edited by Urechia.

Costin Neculaș (1660–1712), son of Miron C., and like him, a politician, scholar and chronicler. He held various posts of dignity under Douca, Antioche Cantémir, and Demetrius Cantémir. He continued his father's chronicle of the Moldavian people from 1663 to 1711, and wrote besides *Căsoarnicul Domnitor*.

Costroma, see KOSTROMA.

Costs. This word in law properly means the sum of money a litigant is ordered by the court to pay to his opponent to recoup the latter for the expense he has incurred in connection with the litigation. The principle of Eng. law is that C. are in the discretion of the presiding judge, but as a working rule it may be said that C. generally follow the event. There is a difference to be observed between the practice in the King's Bench courts and that of the Chancery courts. The right to C. in the King's Bench or Common Law courts depends on whether the action was tried by a judge alone, or by a judge and jury, and further, whether it was of such a kind that it ought properly to have been tried in a county court. When the action is tried by a judge alone, the C. are in the absolute discretion of the judge, who in practice would never deprive a successful litigant of C. except for very good reasons, as e.g. where the action was frivolous or vexatious. Frequently plaintiffs in libel actions who recover 'contemptuous' damages are deprived of C. If the action be tried with a jury as well, the C. will follow the result, unless the judge 'shall for good cause otherwise order.' In general it may be said that the judge will be guided by similar principles in each of the above two cases. It is really almost

entirely a question of the conduct of the parties. A judge may also make an order that each side pay his own C. There is no appeal from the judge's order except where he deprives a successful litigant 'for good cause,' it being for the Court of Appeal to say whether such 'good cause' existed. Where an action tried in the High Court ought, by reason of the amount recovered or the value of the subject matter involved, to have been tried in the County Court, the successful party will only get C. on the County Court scale unless a High Court judge certifies that there was sufficient

successful party will be allowed as many of the charges or expenses which he would have been compelled to pay his own solicitor as fair justice to the other party will permit.

Costume Design, Theatrical. In the early Gk. drama the actors performed their parts in various masks of three readily discernible types—the comic, tragic, and satiric. The wide mouth of the mask served as a megaphone, carrying the voice to the full extent of the theatre, and the set mask showed the wearer's characteristics in a building perhaps too vast for the detection of facial expression. The



A GREEK KOMOS
(From a Vase-painting)

reason for bringing the action in the High Court. The C. of a Chancery or equity action have always been a matter for judicial discretion, and in no way dependent on statutory enactment. The discretion is, however, judicially exercised, and in general the successful party can only be deprived of sufficient cause shown. The party against whom C. are awarded may not have to pay the whole of his opponent's bill of C. Usually C. are directed to be taxed, i.e. the bill is sent to the taxing master's office, and the various items allowed or disallowed. The net amount allowed by the master is called 'taxed C.' Generally C. are taxed 'as between party and party,' i.e. only those items are allowed which are really indispensable to the adequate conduct of the action. C. may, however, be allowed on a more liberal scale, viz. 'as between solicitor and client,' when the suc-

tragic actor was further distinguished by his long coloured and embroidered robe (the *chiton*), with sleeves and high belt, his tall headdress (*onkos*), his cloak (*chlamys*), and his buskins (*cothurni*) or high thick-soled boots which made his height impressive, and were graded in thickness according to the importance of the wearer. The comic actor was contrasted by his low shoe (*soccus*), his lack of headdress, abbreviated or absent *chiton*, the costume usually skin-fitting and the padding in various parts of the figure to give him a ludicrous effect. In addition, the colours of the actors' clothing had a symbolic significance.

The Rom. dramatic costume was closely modelled on the Gk., coloured wigs replacing the headdress—white wigs for the aged, black for youths, and red for slaves. Kings wore crowns and were gorgeously apparelled, while beggars were clad in rags.

The Italian comic play, or the

edia dell' Arte, developed the familiar figures of Harlequin, the Clown, Pantaloon, and Punch. The original Harlequin wore a long, black and white checkered coat, lined in front, multi-coloured breeches, a bat's head hanging from his belt; he was shaved and his cap adorned with a tuft of feathers or a tail of a hare, rabbit, or fox. The patches became blue, red, green triangles symmetrically placed, and finally became of one shape. Columbine, usually wife or sweetheart of Harlequin, originally the long wide skirt and the apron of a peasant, and later

Dressing to suit the part is of comparatively recent date. In the middle of the eighteenth century, Garrick played Macbeth in a contemporary suit of black silk, with silk stockings and a top wig; Spranger Barry (*q.v.*) played Othello in a full suit of gold-laced scarlet, cocked hat, knee-breeches, and silk stockings; and Mrs. Yates, as Lady Macbeth, appeared in enormous hooped petticoats and huge flounces. It was not that these great actors of George II's and George III's day were oblivious of these solecisms. Benjamin West (*q.v.*) (1738-1820), the historical painter who introduced modern



A GREEK KOMOS
(From a Vase-painting)

back to the abbreviated skirt of the ballet so much more adapted to the dancer. Pantaloon, in a brown mask, with hooked nose and white, round, was attired in red, with a black topknot and soft noiseless slippers. The ancient Pulcinella, or forerunner of the clown, was always clothed in white, with a humped back and his stomach added, his mask bore a crooked nose, and his headdress was at times a tall-cap, at others a cone-shaped hat.

The early Eng. plays were all connected with religious subjects, and the most notable costumes were those worn by the Devil, who was represented with the head of a beast and his body clothed in the skin of an animal. In the times of Shakespeare the prevailing costume of the day was usually worn, but concessions were made in the Rom. dramas, when the leading actors were adorned with breastplates and plumed helmets.

costume into historical painting, tried to induce Garrick to reform stage-costume on his lines; but Garrick was aware that the public would not have tolerated the change; for they had grown accustomed to actors in the dress of their own period irrespective of the century in which the story of the drama passed. The incongruity was not apparent to them, and when, in the previous century, Pope and Addison satirised the theatrical costumes of their day, it was not on the score of anachronism, but because the hero overdressed, as by wearing a huge plume of feathers, or because the heroine distracted the attention of the audience by her complicated train. Provided the dress did not detract from the dignity of thought and sublimity of expression of the play, the critics were satisfied. The change came with John Kemble (*q.v.*), who is credited with being the first English

actor to make a close study of 'dressing a part on its merits.' Yet even Kemble was guilty of such gross anachronisms as playing Macbeth in a bonnet of the Black Watch regiment. It was not strict historical accuracy he aimed at so much as a combination of suitability and restraint. But later both he and Macready (*q.v.*) were strongly influenced by the researches of James Robinson Planché (*q.v.*), dramatist and student of costume, and it was to Planché that the English stage owed the first real advance in the reform of costume design. Macready went further than all his predecessors, and is said to have been so impressed with the importance of 'becoming' his dress that after rehearsal he went to bed in it. This practice appears to have been followed by Sir Henry Irving, who, fully alive to the reactions of the actor to dress, showed a taste and aptness in the art of costume design that proved the main factor in the present development of that art on the Eng. stage. In our day there have been spasmodic signs of a reaction, as exemplified in the paradox of Hamlet in a top-hat and frock coat; but such experimentation may be regarded as no more than a satire on the pageantry of Sir Herbert Beerbohm Tree's productions. Not seldom, too, has the stage been the medium of introducing, especially to women, new fashions: Miss Violet Vanbrugh, *e.g.* focused attention on the allure of the corselet and stock collar; and Miss Mary Moore, in *Mrs. Goringe's Necklace*, revived the popularity of the Alsatian bow; while to Kate Vaughan was due the vogue of the lace-frilled petticoat.

At the present time the influence of the Russian stage is having its effect on theatrical costume throughout Europe. Early in the twentieth century Diaghilev (*q.v.*) introduced the Russian ballet to Paris, London, and Berlin, and the spectacular beauty of scenery and costume displayed originated in the brilliant imagination of the great artists Benois and Bakst (*d. 1924*) (*q.v.*). The Bakst tradition is continued by many modern artists. See Mrs. Aria, *Costume: Fanciful, Historical and Theatrical*, 1906; M. Willson Disher's *Clowns and Pantomimes*, 1925; Allardyce Nicoll's *Development of the Theatre*, 1927; Duchartre's *Italian Comedy*, trans. by R. T. Weaver, 1929; R. Fülöp-Miller's and J. Gregor's *Russian Theatre*, trans. by Paul England, 1930.

Costumes, see FASHION.

Costus, a genus of tall herbaceous plants with pinnately veined leaves. They grow in the tropics and bear

brightly-coloured flowers in spikes, the enlarged lip of the flower being the conspicuous part. Owing to the spiral arrangement of the leaves on the stem the genus is popularly known as spiral flag. Several species are cultivated in England under glass, the most attractive species are *C. igneus*, with orange-red flowers, and *C. malortieanus*, with gold and orange flowers.

Cosway, Richard (1742-1821), an Eng. miniature painter, son of the master of Blundell's School, Tiverton, where he received his education. His success in life is said to have been due to his clever portrait of Mrs. Fitzherbert, which gained for him the interest of the Prince of Wales.

Coswig, a tn. in Germany, in the free state duchy of Anhalt, 12 m. from Dessau. There are textile manufactures and coal mining. Pop. 10,130.

Cotabato, a prov. in S.W. Mindanao, Philippine Is., with a cap. C. near the mouth of the C. river, in the valley of which are some of the most fertile regions of the is., but as yet uncultivated.

Coteaux, a com. and minor port of Haiti, W. Indies, 12 m. S.S.E. across the peninsula from Jérémie. Pop. 12,000.

Côte-d'Or, a dept. of E. France, part of the old prov. of Burgundy. Area 3391 sq. m. A chain of hills known as the Plateau de Langres runs through the centre of the department. The N.W. district of Châtillonais is densely wooded, and there the Seine takes its rise. Other rivers are the Rhone and the Loire, and a canal, which connects the Saône with the Yonne, is 94 m. in length. C. is divided into four arrondissements: Dijon, Beaune, Châtillon, and Semur, the town of Dijon being the capital. The climate is equable and healthy, the plains and valleys are fertile, and there is rich pasture land. The principal wealth of the province lies in its vineyards, and it is here that the celebrated Burgundy wines are produced. Other products are wheat, barley, potatoes, hops, and a little tobacco. Sheep and cattle rearing take place in the W. districts. The manufactures include iron, which is found in the district, steel, tools and machinery, paper, tiles, and bricks; there are also flour mills and breweries. Chief import is coal, and there is great export trade in wine, brandy, and live stock. Pop. 350,000.

Cotelerius, Jean Baptiste (Lat. Cotelerius) (1627-1686), a French Hellenist of great merit, b. at Nîmes. He held the office of professor of Gk. at the Royal College in Paris with great distinction. He published

Monumenta Ecclesie Græcæ in 3 vols. (1677-86), and various other works.

Cotentin, a dist. of France which forms part of the department of La Manche, on its N. coast being Cape La Hague. This portion of land was originally the diocese of Coutances. Its chief town is now Coutances.

Cotes, Francis (1725-70), an Eng. portrait painter one of the originators of the Royal Academy of Arts. He was a Londoner by birth, and became a pupil of George Knapp. He took an active part in the artistic life of the country. His portraits in crayons were unrivalled, and he was also a good painter in oils. His chief works are portraits of Mrs. Child of Osterley Park, and of the beautiful daughter of Wilton, the sculptor, afterwards the wife of Sir Robert Chambers. His portraits have been engraved by Bartolozzi, Ryland, Green, MacArdell, and others.

Cotes, Roger (1682-1716), a famous Eng. mathematician, b. at Burbage in the county of Leicester. He was educated at St. Paul's School, London, and at Trinity College, Cambridge, becoming a fellow of Trinity in 1705, and in the following year Plumian professor of astronomy. In 1713 he wrote a valuable preface to the second edition of Newton's *Principia*, and about the same time took holy orders. His death at the very early age of thirty-four brought the tribute from Newton that 'had Cotes lived we might have known something.'

Côtes-du-Nord, a maritime dept. of the N.W. of France, formed from part of Brittany. Area 2787 sq. m. Off the steep rocky coast lies Bréhat, and other small islands. In form C. is an undulating plateau, with three ranges of hills in the southern portion. The climate is mild and equable. On the high lands the soil is poor, but along the coast, where sea-weed and marl are used as a fertiliser, it is much richer. Wheat, oats, and buck-wheat are largely grown, also potatoes, mangels, apples, and plums. The culture of flax is an important industry, and the department is famed for its breeding of horses. Slate, lime, and China-clay are found, and the flour-mills, tanneries, iron-works, and ship-building yards form a source of employment to many of the natives. The chief imports are coal, wood, and salt, and the exports are horses, flax, and agricultural products. The fishing industry is of great importance. C. is divided into the arrondissements of St. Brieuc, Dinan, Guingamp, Loudéac, and Lannion. The capital tn. is St. Brieuc. The department contains many interesting churches dating from the twelfth century. Pop. 553,000.

Cotgrave, Randle (d. 1634), the author of our earliest Fr. dictionary. He was of a Cheshire family, but little is known of his early life. He was educated at St. John's College, Cambridge (1587), and afterwards became secretary to William Cecil, Lord Burghley. In 1611 he published his French-English dictionary, of which there was a second edition in 1632. It was a remarkable book of its time, and is still of great value to the philologist.

Cöthen, **Coethen**, or **Köthen**, a tn. of Anhalt in N. Germany, 12½ m. from Dessau, 35 m. from Leipzig. It was once the capital of the duchy of Anhalt-Köthen which was united to Anhalt-Dessau (1853). It has a castle, interesting churches, a library, and an academy for the study of homoeopathy, founded by Hahnemann (1820). There are boiler-works, iron-foundries, and machine shops, and malting and beetroot-sugar industries are carried on. Pop. 26,800.

Cotignac, a Fr. tn. situated in the dept. of Var, and near it is the church of Notre Dame de Grâce, a centre for pilgrims. Pop. 1580.

Cotillon (Fr., petticoat), the name of a lively dance of Fr. origin, of the time of Louis XIV., not unlike the quadrille, and performed by eight persons. It developed into the form of a quick waltz, and was danced to the music of waltzes, polkas, mazurkas, and galops. The dance is a very favourite one on the Continent, and in the U.S.A.

Cotin, Charles (1604-82), a French preacher and poet, and the counsellor and almoner of Louis XIV. He was versed in philosophy, theology, and the Hebrew, Syriac, and Greek languages. His *Œuvres Mêlées* was published in 1659, and his *Œuvres Galantes* in 1663. Boileau frequently mentions him in his satires, and Molière in his *Femmes Savantes* satirises him under the name of Trissotin. When C. was attacked by Boileau he thought that through his wealth and influence at court he would be able to put a stop to his ridicule, but he failed, and further was then satirised by Molière.

Cotinga, a bird of the family Cotingidæ, commonly known as the Chatterers. It is found only in tropical America. The plumage of the male is especially magnificent at certain times of the year. The general colour of the female is plain grey or green. They feed on fruit and insects.

Cotman, John Sell (1782-1842), an eminent Eng. artist, b. at Norwich, where he was educated at the Grammar School. Showing an aptitude for art, he went to London about

1798 to study, and there made the acquaintance of a number of famous artists, including Turner. He returned to Norwich in 1807, and obtained a livelihood by giving lessons in drawing, while he also painted many landscapes and a number of portraits. Mainly by Turner's assistance he was successful in obtaining the post of drawing-master to King's College, London, in 1834. Unfortunately he suffered from fits of melancholy, and in his later years bore much suffering with courage. He is perhaps the best of the 'Norwich School,' and, in addition to the large number of water-colour drawings he produced, he found time to publish several volumes of excellent etchings.

Cotman, Joseph John (1814-78), a landscape painter, the second son of John Sell C. As an artist he had much original power, but his ill-health was an insurmountable bar to any success in life. He produced many drawings of great merit.

Cotman, Miles Edmund (1810-58), a landscape painter, and the eldest son of John Sell C. He painted river and sea views, and etched a few plates, his work showing much taste and skill.

Coto Bark (*Cortex coto*), an official bark obtained (since 1876) from Bolivia, used formerly in cases of diarrhoea, colic, and for neuralgia, gout, rheumatism, and excessive perspiration. Its exact source is not known. It may be derived from 'Palicourea densifolia.' The bark is in flat pieces destitute of cork, cinnamon-brown outside and darker underneath. It has an aromatic smell, and a bitter pungent taste. See Watts, *Chem. Dict.* i.; *Syd. Soc. Lex.* 1882.

Cotoneaster a genus of Rosaceae closely allied to the hawthorn genus *Crataegus*. The species are favourite shrubby plants which grow wild in N. lands. In Britain *C. vulgaris* was formerly found in N. Wales upon the cliffs at the Great Orme's Head, but the pretty rose-petalled flower is now extinct.

Cetopaxi, a volcano in the E. range of the Andes in Ecuador, S. America, and about 35 m. S. of Quito. The cone of the volcano is beautiful in appearance and snow-clad. Estimated by Whymper to be 19,613 ft. above sea-level (the top is about 10,000 ft. higher than the elevation of the valley), C. is the highest active volcano. There have been numerous eruptions, the most violent being probably that of 1768.

Cotrone, a seaport and fortified tn. in the prov. of Catanzaro, Calabria, Italy. It is on the site of the ancient Crotona founded by the Achæans, 710 B.C., and was taken by Agathocles

of Syracuse in 299 B.C. It was the residence of Pythagoras and of Milo, and was for a long time one of the richest and most populous cities of Magna Græcia. It has a fine citadel, but its streets are narrow. Exports olives and oranges. Pop. 11,600.

Cotswold Hills, a range of oolitic, limestone hills in Gloucestershire, Eng. They extend over a length of about 50 m., the highest peaks reach to a height of 1100 ft. (Cleeve Hill is 1134 ft.), but the average height is between 500 and 600 ft. The Thames takes its rise in the eastern slopes. Large flocks of sheep are bred in the district.

Cotta, a com. of the kingdom of Saxony, in the district of, and a W. suburb of the city of, Dresden.

Cotta, a German publishing firm, founded in Tübingen by Johann George Cotta in 1640, and later one of the most flourishing in Germany. The family was originally of noble Italian descent. The founder (1631-92) married the widow of Philip Braun, a university bookseller, and took over the management of the business, and so established the future of the firm. Subsequently the business was allowed to languish, but Johann Friedrich, Baron C. von Cottendorf (1764-1832), restored the fortunes of the firm. The connection rapidly extended, and in 1794 he started the *Allgemeine Zeitung*; also *Die Horen* in 1797 with the assistance of Schiller. He made friendships with many literary men, amongst whom were Huber, Pfeffer, Herder, Schelling, Fichte, Richter, and Voss, whose works he published. In 1824 he set up a steam printing press in Augsburg, and founded the following year a literary institute in Munich. His son, Georg, Baron Cotta von Cottendorf (1796-1863), further extended the business by buying various publishing concerns in Leipzig and Munich, founding periodical publications, and issuing editions of the German classics. His younger son, Carl von Cottendorf (1835-88), took on the business at the death of his father. During his time several of the branches were sold.

Cotabato, or Cotabato, the chief tn. of a dist. of the same name in Mindanao, one of the Philippine Islands. The district is mountainous and the chief peak, Mount Apo, is a volcano. The town is situated on the Rio Grande de Mindanao. Pop. 2500.

Cotthus, see KOTTBUS.

Cotter, a wedge-shaped piece of wood or metal used for fastening together the parts of a structure. It is specially used in the projecting end of a fastening pin to prevent it from slipping out.

Cottet, Charles (b. 1863), a Fr. painter, b. at Puy. He was a pupil of Puvis de Chavannes, and of Roll. He made his name by his gloomy, sombre and impressive scenes of life on the coast of Brittany. In 1889 he exhibited two pictures in the *Salon* of the Champ de Mars, and in 1890 his 'Storm on the Meuse' was produced. Another picture of great power is 'A Burial in Brittany,' 1895, now in the Lille Gallery. His fine triptych in the Luxembourg at Paris, painted in 1898, marks the full development of his powers, and is one of the series of the 'Pays de la Mer.'

Cottian Alps. This is the name given to that portion of the main chain of the Alps extending from the Graian Alps on the N. to the Maritime Alps on the S., lying on the borders of France and Italy, and forming a division of the Western Alps, as distinct from the Dauphiné Alps to the W. The C. A. have more than thirty peaks exceeding 10,000 ft., of which the most important are Monte Viso (12,609 ft.), Aiguille de Scolette (11,500 ft.), Aiguille de Chambeyro (11,155 ft.), Rognosa d'Étache (11,106 ft.), Dents d'Ambin (11,096 ft.), Rochebrune (10,906 ft.), and Rognosa di Sestrières (10,758 ft.). There are some twenty passes or 'cols,' among which is the pass of the Mont Genève, between the Cottian and Graian Alps, connecting the valleys of the rivers Dora Riparia in Piedmont and Durance in the Hautes Alps. This is one of the oldest of the Alpine passes, and is the lowest carriage road in the Western Alps, while it is believed by many authorities to be the roadway used by Hannibal when crossing into Italy. There is also the famous Mont Cenis pass between Susa and Modane, constructed by Napoleon and once the most used of the roadways, while the railway tunnel of Mont Cenis, 7 m. long, passes under the Col de Fréjus about 15 m. away. Other passes are the Col de Longet, Col d'Agnello, Col de la Traversette, Col de Sestrières, and the Col des Echelles. Here also are the Waldenses, who took refuge in the valleys of the Cottian Alps.

Cottingham, a tn. of Yorkshire, England, E. Riding, 4 m. from Hull, Howdenshire division. Pop. 5133.

Cottle, Joseph (1770-1853), a bookseller and author. He set up in the publishing business in Bristol (1791), where, through Robert Lovell, he made the acquaintance of Southey and Coleridge, making offers to each of them of 30 guineas for their poems; and in addition 50 guineas for Southey's *Joan of Arc*, and 1½ guineas to Coleridge for every 100 lines of poetry he might write. C. was

chiefly responsible also for Coleridge's periodical *The Watchman*, and after an introduction to Wordsworth, published the *Lyrical Ballads*, 1798. On retiring from business C. produced *Malvern Hills* and several other volumes of his own verse. It was he who handed over to Coleridge De Quincey's donation of £300, and he had some extremely sanctimonious correspondence with the poet protesting against his indulgence in opium. His *Early Reflections* contain an injudicious and unworthy exposure of Coleridge, and the book is condemned, moreover, for inaccuracy and confusion.

Cotton, Sir Arthur Thomas (1803-99), an English general and irrigation engineer, who in 1828 began his life-work on the irrigation of Southern India. The scheme for the waters of the Krishna was his, though it was carried out by Major-General Charles Orr. Before his efforts, Tanjore and the adjoining districts were threatened with ruin from lack of water; they afterwards became the richest part of Madras. C. founded a school of Indian hydraulic engineering, and much of his work was done in the teeth of opposition and discouragement.

Cotton, Charles (1630-87), an English poet and translator of some note. He was b. at Beresford in Staffordshire, and is said to have been educated at Cambridge. His father, himself a brilliant man, numbered among his friends Ben Jonson, Selden, Izaak Walton, and Donne, and possessed estates in Derbyshire which were considerably lessened in value through law suits. The younger C. travelled on the Continent as a boy, and while always interested in literature we have no record of his following a calling. In 1656 he married a cousin, Isabella, and the sister of Colonel Hutchinson. He was open-handed and improvident, of engaging manner and appearance, while he seems to have been continually embarrassed by pecuniary matters. His *Ode to Winter* has been eulogised by Wordsworth and Lamb, but his most meritorious work is a translation of Montaigne's essays, first published in 1685. His *Scarronides, or the First Book of Virgil Travestied*, was published anonymously in 1664, and was revised in later editions, becoming more gross on each occasion. He also wrote a *Voyage to Ireland, Wonders of the Peak*, and contributed to the fifth edition of Walton's *Compleat Angler*.

Cotton, George Edward Lynch (1813-66), an English educationist who became an assistant master at Rugby, co-operating heartily with Arnold. In 1852 was appointed

headmaster at Marlborough College, which he raised to a high position. In 1858 C. became bishop of Calcutta, his chief work being the establishment of schools for British and Eurasian children.

Cotton, James Sutherland (1847-1918) an English writer on India, *b.* at Coonoor, Madras Presidency. His chief works are: *Decennial Statement on the Moral and Material Progress of India*, 1873-83; *Quinquennial Report on Education in India*; *India*; and *Elphinstone*. With Sir W. W. Hunter he compiled *Statistical Accounts of Bengal and Assam*, and the *Imperial Gazetteer of India*, and was for many years editor of the *Academy*.

Cotton, John (1584-1652), an Eng. Nonconformist divine, *b.* at Derby. He was a tutor at Cambridge, and was later appointed vicar of Boston, Lincolnshire. Cited to appear, for his Puritan views, before Laud at the High Commission Court, he fled, in 1633, to New England, and re-christened Trimountain, his landing-place, Boston. Here he preached and helped to frame the civil laws for the state of Massachusetts. He was reputed a profound scholar, and was the author of nearly fifty works, including a catechism, forms of prayer, and a defence of the interference of civil authority in religious matters, in a famous controversy with Roger Williams.

Cotton, Sir Robert Bruce (1571-1631), an eminent Eng. antiquary, was *b.* in the county of Huntingdon, and educated at Westminster School, London, under the famous Camden. At an early age he commenced to collect old manuscripts and coins, in which he was greatly helped by the disbandment of the monasteries some fifty years earlier. He was a member of and read papers at the meetings of the Antiquarian Society, and rapidly acquired a great reputation. Elizabeth referred to him on a question of precedence between Eng. and Spain, while similar requests were made by members of the gov. Under James I he rapidly came into royal favour, and received a baronetcy in 1611, one of the earliest granted, while the king employed him on several antiquarian researches. In 1615 he was imprisoned on suspicion of being implicated in the murder of Sir Thomas Overbury, but was released without trial after eight months. He returned to parliament, where his influence was used in opposition to the crown on constitutional grounds, while he strongly opposed the suggested debasement of the coinage. A pamphlet falling into the king's hands was found to be a copy of the original in C.'s library, and being considered as

dangerous to the state, C. was imprisoned and a trial by Star Chamber appointed. On the day fixed, however, an heir to the throne was born, and to mark the event Charles I. released C. and the others implicated. The use of his library was, however, denied to C., who sickened and died through the consequent depression. Although writing many pamphlets, he produced no outstanding work. The library with its additions from C.'s descendants was bequeathed to the nation in 1700. At the fire in 1731 at Ashburnham House, Westminster, 114 of the total 958 volumes were destroyed, and 98 partially destroyed. The library is now incorporated with that of the British Museum. See *Catalogue of the Manuscripts in the Cottonian Library* (London, 1802), by Joseph Planta.

Cotton, Sir Stapleton, *see* COMBERMERE, VISCOUNT.

Cotton, Gun, or Pyroxyline, the name of an explosive substance produced by the action of nitric acid on cotton. Sulphuric acid is used to absorb the water formed by the nitric acid as it gradually combines with the cotton. Gun cotton possesses four or five times the explosive power of gunpowder, and is generally moulded into discs of suitable sizes. When free, it burns readily, and only explodes when fired with a detonating fuse, or if heated in confinement. The presence of water does not interfere with its explosive powers, and a detonator in a small quantity of dry gun cotton will explode the wet mass. This is very useful, as it can be carried in a wet condition, being then safe to handle, yet ready for use.

Cotton Printing, *see* CALICO PRINTING.

Cotton Seed Oil is obtained by pressure from the C. S., of which it constitutes nearly one quarter, and is used for a great many purposes, such as a substitute for olive oil, or an ingredient in the manufacture of soap, candles and gramophone records.

Cotton Spinning and Manufacture. So far as authorities have been able to ascertain, India is the accredited birthplace of cotton manufacture, and it would seem probable that the processes of spinning and weaving have been carried on from the earliest date of which we have any record. India had an export trade in cotton in the reign of Amasis, 569-525 B.C. It is probable that the consumption of raw cotton for the making of garments existed long before Herodotus, on account of its natural adaptability to twist itself into threads. It is owing to this natural twist in every single fibre (microscopic in character) that cotton has taken front rank with

regard to the use of all textile raw materials. Of all textiles, cotton is the most easy to twist into fine threads, a process which may be performed upon the plucked filaments with the fingers. Indeed, it is from this simple operation that the now intricate and highly developed art of spinning has grown, first and foremost under the genius of Great Britain. The cotton plant is indigenous to nearly all tropical and

other Asiatic varieties; and the fourth species named, comprises grades of cotton grown in India, S. and Central America, and Asia, and is the most universally consumed. In a little work written by J. T. Broadbent of the Technical School, Fall River, it is succinctly stated: 'When viewed under the microscope, a cotton fibre appears as a flattened twisted tube, thicker at the edges than in the centre, and being of equal diameter for about



semi-tropical countries. It is a wool-bearing shrub, called *Gossypium* by scientists, and is largely distributed all over the torrid zone. No sooner does the cotton plant arrive at maturity than its swollen capsules or pods burst with a natural force into three or five segments to display its fleecy product. It has been calculated that there are about 137 varieties of cotton. The main species in use, however, are *Gossypium Barbense*, *G. herbaceum*, *G. hirsutum*, and *G. arboreum*, or *G. peruvianum*. These include, respectively, Sea Island and Egyptian (the finest varieties of all cotton); American Upland cotton; Indian, African, Chinese, and

three-fourths of its length; after which it gradually tapers for the remainder of its length, at the same time becoming more cylindrical. This peculiarity of the cotton fibre to twist on its axis is the principal cause of the cotton fibres being so admirably adapted for spinning, as it permits the fibres to interlock with each other, in addition to entwining about each other through the introduction of artificial twist.' It should be stated that unripe fibres and cotton in a wild state do not possess these readily twisting qualities. Botanists show that a good staple contains from 300 to 800 twists in its length, the mean length varying from 1.7 in. as in

Sea Island to 0.9 in. as in the best Indian quality; in an ordinary variety, the number of twists ranges to over 150. Strength depends upon the number of twists and fineness of diameter and upon the length of the fibre. The length of cotton fibres grown in the United States varies from $\frac{3}{4}$ of an inch to $1\frac{1}{2}$ in.; Sea Island fibres from $1\frac{1}{2}$ to $2\frac{1}{2}$ in.; Egyptian from 1 to $1\frac{1}{2}$ in.; Brazilian from $\frac{3}{4}$ to $1\frac{1}{2}$ in.; Indian $\frac{1}{2}$ to 1 in.; Peruvian from $1\frac{1}{2}$ to $1\frac{1}{2}$ in. The fibres vary in diameter as follows: Sea Island, $\frac{1}{100}$ of an in.; Egyptian, $\frac{1}{100}$; American (ordinary), $\frac{1}{100}$; Indian (best quality), $\frac{1}{100}$. The largest cotton crop is produced in the U.S.A., and it remains the most marketable cotton, because it is the most adaptable to general domestic use. But besides the countries already mentioned, cotton is grown on Russian territory in Asia, and (under the auspices of the British Cotton-growing Association) in Uganda, Nyassaland, W. Indies, W. Africa, and the Soudan. But the three greatest grades for general consumption are cultivated in the United States, Egypt, and India. In round figures, about 20,000,000 bales, averaged at 500 lb. each, are consumed, in all parts of the world, annually, this being the estimate for 1929. The total crop of the American and Mexican plantations (47,000,000 ac.) in 1928-29 was 14,558,000 bales and in 1929-30 (provisionally) 14,903,000 bales. In India the cotton crop (1928-29) in thousands of bales was 4718; in China 1550; in Egypt 1491; and in Russia 1208. The places which produce the best cotton for general use may be mentioned in their order of merit as follows: Sea Island, Egypt, United States, and India. The preparation for each season's crop of raw cotton begins in January and goes on until March, this work consisting of clearing and breaking up the ground. Planting of seeds commences in April, and ending at the latest about the middle of the month. The picking of the ripe cotton starts in August and is completed in December, or the middle of January. The new season's crop of American cotton begins to arrive in Lancashire about the middle of September or the beginning of October. The chief markets for the sale of the world's cotton, are New York, New Orleans, Liverpool, Bombay, Havre, Bremen, Milan, and Amsterdam. It is sold on 'spot,' but principally in 'futures,' for delivery at some future date arranged by those who contract its sale, which is governed by the strict rules of the various cotton exchanges. Every

cotton-producing country has a variety of grades or quality, the prices being arranged accordingly. The 'base price' for American cotton is known by the term of 'middling' and Egyptian 'good brown,' there being grades below and above these qualities. Every decimal point above or below the basic price, means $\frac{1}{100}$ of a cent. The first process through which raw cotton passes after being picked from the plants (by hand and sometimes by machinery) is that of ginning, which consists of separating the seeds from the raw material. This is usually performed by different types of gins operated in close proximity to the plantations. This is an important process, as cotton before being picked is composed of two-third seeds, and it is absolutely essential to separate these before the cotton can be used for spinning, or even for baling. The first cotton gin was invented in 1793 by Eli Whitney, an American (*q.v.*), and its productive capacity completely revolutionised the cotton industry. The gin most in use is the saw gin, so called by the fact that the fibres are torn from the seeds by a series of circular saws, which press against a grid to prevent the seeds from passing beyond a certain stage of the machinery, with the consequence that the fibres are plucked from the adhering substance or the seeds. It is not a perfect process by any means, as it tears the fibres too much and injures them. Roller gins have been introduced as rivals to the saw gin, but in spite of the damage which the latter inflicts on the fibre, it continues to hold its place, owing to its rapidity of production. Inventions are still being put on the market; it is estimated that the loss to the United States alone, due to the present methods of ginning, must amount to something like £6,000,000. It may be briefly stated that of the several types of gins in use, the most universally adopted are the Macarthy (or roller) gin, and the Eagle (or saw) gin. After leaving the ginning houses, the cotton is pressed by machinery into bales, varying in weight from 200 lb. as in the case of Peruvian cotton, to 500 lb. as in the case of American cotton, and 730 lb. as in Egyptian cotton. There are both round bales and square bales, some being called after the inventor of the particular bales in use. On arriving at the spinning mill, the raw material begins to pass through a series of processes, all more or less remarkable for the ingenuity with which they have been devised. Mixing is the first process. The cotton is taken from the bales in its closely

packed and matted condition and piled in stacks. It is allowed to stand in storage compartments for several days to permit the fibres to expand to their natural condition, and also to take out any excessive moisture. Offener than not the bales, in which the cotton is enclosed in jute bagging held together by iron straps, contain different classes or grades of cotton. These are mixed according to the quality of yarn, or counts of yarn, to be produced. The blending is also done for economic reasons, as it has been learned by experience that the required quality of yarn may be effected by mixing a higher grade of cotton with a lower one. The principal features that have to be taken into consideration are length, colour, and strength of fibres, as well as the price and the general characteristics of the cotton for which the spinner has contracted. The mixing of cotton is an important process. A bad mixing would lead to the production of inferior yarn. It is essential that there should be a proper blending of shades if the cotton is meant for yarn that has not to be dyed; but the chief consideration is that of getting a mixture of grades of fairly even fibres, so as to obtain the necessary evenness and elasticity in the yarn. It is the practice in some mills still to do the mixing by hand. In that case the raw material is spread in layers, one grade being on top of the other. Great stacks are built up in this way between compartments with lattice sides to allow a passage of air to get to the cotton. It is customary to mix as much cotton at one time as will last from three or four days to a week. It is, however, the practice in the large mills to mix cotton now by machinery. Bale-breakers are used for this purpose, and it is claimed that the work is done not only more quickly, but more efficiently, as the cotton is mixed in smaller pieces. There are three types of bale-breakers, the spiked roller machine, the porcupine machine, and the hopper-breaker, which is the one now most commonly in use. One of these machines will mix 750 lb. of Egyptian cotton in about ten minutes and 500 lb. of American in five to ten minutes. The labour saving thus effected is considerable. One machine will mix over 150,000 lb. of cotton a week. When the bales of cotton have been opened, and the raw material properly mixed and stored, the next process is that of scutching.

The scutcher is a machine consisting of beaters running at from 1000 to over 1500 revolutions a minute; its object is to clean the cotton and form it into laps in the

shape of rolls of paper used in connection with printing. The machine by its revolving blades beats the rough dirt out of the cotton, and by an ingenious process of fans and rollers forms it into a continuous sheet, which is formed into a lap at the back of the machine. In striking the cotton, the beaters are arranged according to the known length of the staples. The laps, or rolls of cotton, formed at the scutcher are conveyed to the carding engines. The laps have been formed even in weight and thickness, but the fibres are mixed up anyhow. It is the function of the carding engine to straighten them out, or in other words, comb them, as a lady would comb her hair. This machine not only places the fibres approximately parallel, but it removes many impurities still left in the cotton, such as motes and pieces of unripe seed. It removes also irregular fibres; in other words it chastens or refines the cotton, and whilst doing all this by a revolving series of cards with short, sharp wire teeth, it turns the cotton into a sliver or rope of gossamer fibres, delivering the sliver into a revolving can, so that it is evenly distributed. There are different types of carding engines in use, but the one most generally adopted is the revolving flat carding engine. Its name is derived from the travelling 'flats' on which the cards are placed. The wire teeth of the cards come in contact with the wire clothing of a cylinder running at about 26,000 revolutions a minute. The flats, however, travel (over the cylinder) at a slow pace and in the same direction as the cylinder, and the cotton is thus cleaned and combed by contact with the surface of the teeth on the flats and on the cylinder. The wire teeth are of varied 'counts' or thinness or thickness, according to the class of cotton most used at the mill; they vary from 300 to 650 points per square inch. It is essential that the cards should be kept very clean always, so that the cotton may be evenly and perfectly carded. The setting of the cards is a task which must be done with great care, as inefficient carding leads to endless trouble in subsequent processes, and reduces the quality of the yarn. In mills devoted to the spinning of fine counts, cotton is put through combers after having been through the carding engine. Here the sliver is re-made into small laps, which are carried to a second lot of carding machines. Other processes having a similar purpose are introduced; but, whether mills of fine or coarse counts, the object of carding is to prepare the cotton in slivers for the drawing frames. The function of

this machine is to put several slivers together and draw them out into one. By this means the fibres or slivers become well blended together and all irregularities eliminated. It passes from the drawing frames to the flyer or slubber frames, where the attenuated sliver is subjected to a slight draft, or in simpler language the fibres are stretched and twisted together, but only to a small extent.

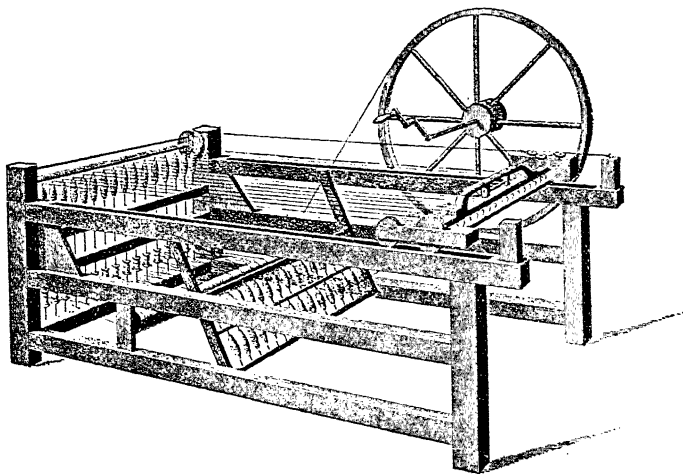
It passes through three rows of draft rollers running at different speeds, twisted by the flyers and wound on to bobbins or tubes; only enough twist, however, is given to the roving to enable it to run on to the bobbins without breaking. But the object is to lessen the thickness of the sliver made at the drawing frame; from being the thickness of an ordinary rope, it is reduced to a string or roving. In factories where fine counts are produced, the next process is the intermediate frame. It adds a little more twist to the roving and stretches it a little more, thus lengthening and thinning it. It is from Sea Island and Egyptian cotton that the fine counts of yarn are made. Coming from the intermediate frame, or the slubber frame, as the case may be, the roving is now passed through the roving frame or Jack frame, where it is further stretched and thinned and twisted. It receives the roving from two bobbins per spindle, and by means of the larger draft, makes two rovings into one finer and thinner than either of the two.

In all the processes previously mentioned, from the carding engine, the object has been to bring the thick sliver more and more to the fineness of the yarn to be spun on the spinning mule, and afterwards prepared for the loom where it is woven into a fabric. Practically all the movements of the machinery are automatic, the workers simply being attendants upon the machines. For the past hundred years or more, the tendency has been to increase the size of the machines and accelerate the speed of production at the same time. The spinning mule itself has, no doubt, been the most improved. It should be observed that the cotton, so far as we have followed it, has passed through departments all on one floor—in what are known as the blowing-room and the cardroom. These processes are in nearly all cases carried on on the ground floor of the mills. It is in the upper stories that we come to the actual spinning, especially where mules only are used. The bobbins manufactured on the roving frames are conveyed to the spinning rooms above where they are fixed in long rows or creels forming part of the

spinning mule. Generally two bobbins of roving are used to make one thread of yarn. The double roving passes through three sets of rollers running at different speeds, in order to stretch it still further—indeed to stretch, by the draft in the rollers, to the fineness of the actual yarn when it is given its final twist to strengthen and harden it. One spinner and two helpers—sometimes three helpers—look after a pair of mules. With the headstock or driving parts of the mule in the centre, a pair of mules consists of two long moving carriages, carrying, on an average, about 1000 spindles each. There are also smaller mules, and larger ones having as many as 1300 spindles each. The carriage of the mule is continually moving to and fro, a distance of about 60 in. out and 60 in. back again towards the rollers and the creels of bobbins. In its outward run it twists and stretches the yarn; for instance, on 60's twist, the stretch of yarn coming from the rollers is about 60 in., but the quantity wound on to the 'cop' or the spindles during the inward run of the carriages is 64 in. per stretch. The distance that the carriage travels from the rollers is called a 'draw,' or a 'stretch,' there being about three performed each minute. Hence each spindle winds on about 192 inches of yarn every minute; or a pair of mules of 2000 spindles, managed by one spinner and two piecers, make 384,000 inches of yarn every minute of the working day, or over 4,000,000 yards a week. The spindles vary in speed, as the motion of the carriage does, according to the counts being spun. Generally speaking, a mill of 80,000 spindles would yield about 32,000 lb. of yarn per week. Spinning is the most interesting and the most ingenious process referred to, so far, in the treatment of the cotton. In the United Kingdom, mule spinning is the most prevalent. Out of a total of 57,000,000 spindles, about 46,000,000 are mule spindles, the bulk of the remainder being ring-frame spindles. In most other countries it is the other way about, the ring spindles being predominant. The U.S.A., for instance, has, in round figures, 35,500,000 cotton-spinning spindles, of which only about 5,000,000 are mule spindles; the remainder are ring-frame spindles. The mule is capable of turning out much finer counts of yarn than the ring-frame. The total spindleage of the world was estimated on July 31, 1928, to be 165,103,000. In 1929 the number in Great Britain increased to 57,750,000. But the principle of spinning to-day is, except for improve-

ments, exactly as it was when invented by the mechanical geniuses of the latter part of the eighteenth century. Richard Arkwright is usually regarded as the founder of the cotton factory system. He directed his attention to the matter of cotton spinning machinery about 1767. He erected his first mill at Nottingham in 1769, and put up one at Cromford in Derbyshire in 1771. Perhaps the most distinct departures from the old domestic spinning wheels were made by Arkwright and James Hargreaves, a poor weaver of Standhill, near Blackburn. Hargreaves invented the spinning jenny in 1764, in

lower, enabled them to take hold of the roving of cotton, which as soon as it had begun to pass through was received by the second rollers, which revolved with three, four, or five times the velocity of the first pair. By this admirable and simple contrivance the roving was drawn out into yarn of the necessary degree of tenuity, a twist being given to it by an adaptation of the spindle and fly of the common flax wheel; it required only that a person should feed it with roving, and join any threads which might happen to break during the process. This principle is still included in the present spinning mule.



HARGREAVE'S SPINNING JENNY

which spindles were fixed in a perpendicular position, or very slightly inclined. It should be also pointed out that in 1738 John Wyatt and Lewis Paul brought out a machine for spinning with rollers. Arkwright patented the spinning or water frame in 1764, which, while drawing out the carding or roving, gave to it a twist and pressure necessary to produce the hardness and firmness which fitted it so admirably to the purposes of the warp; it was also capable of producing finer yarn than had been done prior to that time. It consisted of two pairs of rollers, turned by means of machinery, the lower one of each pair being furrowed or fluted longitudinally, the upper ones covered with leather, and pressing upon the

And it was this invention and the jenny of Hargreaves for multiplying the spindles in one machine that made the cotton factory system a coming force. Hitherto, all spinning had been done in the homes of the spinners. But the two methods were not very well adapted for the production of very fine yarns or even yarn which the manufacture of British fabrics required in order to compete with goods of Indian manufacture. The water frame spun twist for warps, but the yarn was defective in fineness and tenuity. The jenny of Hargreave's was capable of turning out weft. But the great waste of labour and time rendered a combination of the two machines eminently desirable; and it was in 1779 that Samuel Crompton,

a weaver living at the Hall-in-th'-Wood, near Bolton, invented a machine which combined the essential principles of Arkwright's frame with the property of the stretching possessed by Hargreave's jenny. Hence it became known as the 'mule.' By means of this invention the roving was first drawn out of the rollers as in the water frame, and then stretched and spun by spindles without bobbins after the rollers had ceased to give out the rove. By this means the yarn was made finer and of a more uniform degree of tenacity. At first the mule was constructed with only twenty spindles, but by successive improvements it has been increased to 1350 spindles; and a pair of mules which form a mule jenny-gate, in charge of one spinner and two helpers, consists to-day of any number of spindles from 2000 to 2700 and 2800; whilst the revolution of the spindles has been enormously increased, having been doubled during the past fifty years. As already indicated, when the mule carriage with its very long row of spindles has completed its stretch of 60 in., and its second stretch of 3 or 4 in. (when the roving has ceased to come from the rollers), the mule disengages itself in a wonderfully automatic manner from the stretching portions of the machinery, and the carriage returns to the rollers to begin its task of stretching again; it is when returning to the rollers that the yarn is wound on the spindle in a conical form, and is called a cop. Warps for weaving are made up of hard twist, and weft yarn (containing little twist) is used in the shuttles and interlaced with the warp, thus forming the cloth. Formerly, the yarn was wound on to the spindles by hand; but in 1825, Richard Roberts, a Manchester engineer, perfected a system of self-action in mules which gradually dispensed with the hand-mule, of which there are very few, if any, now in existence. The self-acting mule (eventually made capable of spinning the finest counts) is now universal. However, in the above inventions one may perceive the whole principle of spinning cotton yarn. Improvements that have been added from time to time have made the mule into a very complex and highly productive machine, and the cost of a cotton mule spinning mill in the United Kingdom to-day is estimated at about £2 per spindle, including the building, gearing, etc. This is higher than pre-war rates, following on the boom in 1919 when prices rose to as much as £7 per spindle. In contrast to mule spinning, spinning on the ring frame, now making considerable progress in this

country, is performed on a machine that has no movable carriages. It resembles the frame in the card-room employed in the preparatory processes. Unlike the mule, it spins the yarn on a continuous system, drawing the roving from a creel of bobbins. Also unlike the mule, it does not wind the yarn on a bare spindle, but on bobbins or paper tubes. This is a drawback to it, and all attempts at spinning on the bare spindle have so far been unsuccessful. From the rollers (which deliver the roving) the rove passes through thread-guides, placed over the centre of the spindle, and is wound upon the spindle by means of a ring and traveller. The ring is borne upon a movable rail, which moves upwards and downwards, thus providing the necessary traverse for the building of the cop of yarn. Hence the origin of its name. Ring frames are worked by female labour, whilst the mule now employs males only—this is now almost the universal practice. The ring-frame has a further contrast to the mule, in so far as it is yet unsuited for fine counts. It is mostly used for coarse, and sometimes medium, counts of yarn. Counts of any number can be spun on the mule, from 1's to upwards of 350's. The term 'count' means one hank of 840 yards of yarn, or one pound in weight. Hence 350's mean 350 hanks of 840 yards each to the pound. As a further example, 40's count of yarn means 40 hanks to the pound. The finer the yarn, of course, the more hanks are required to make up one pound in weight. As a rule, fine yarns (that is over 50's and 60's counts and spun from Egyptian cotton) are made from double roving, as compared with a single thread for counts below 50's and 60's. Yarn as delivered by the spinning machines is unsuitable, both in form and condition, for immediate conversion into cloth. There are various methods of warping—that is, the making of the warp and attaching it to the loom. In fact, after cotton yarn has been spun on the mules, it has to undergo almost as many processes to prepare it for the loom as it had to go through in making it suitable for the mule. The yarn cops are first of all wound upon warping bobbins, there being various types of machines for this purpose. This is followed by warping, which consists in placing the thread together to form a warp in a manner that it can be evenly wound upon the beam of the weaver's loom.

Next comes the sizing of the yarn; this is an important feature. It is necessary that all single-twist warp yarns should be sized. The object is to increase the strength and smooth-

ness of the yarn to enable it to bear the strain of weaving; sizing also increases the weight and bulk of the yarn and improves the appearance of the cloth. Size-mixing is, to some extent, one of the secrets of the trade. A variety of substances is used in the mixing, but the object is to get those possessing adhesive or glutinous properties to give strength and smoothness by fixing all the loose fibres in the yarn. Hence, among the substances used are flour, starch (from wheat, rice, sago, maize); dextrine and gum tiagazol are also used. For making the yarn soft and pliable mixings are applied containing tallow, grease, oils, wax, soap, and glycerine. For weight, China clay, barytes, and French chalk are added. Zinc chloride is one of the substances put in to prevent mildew. Magnesium chloride, calcium chloride, glycerine, and common salt are used to help the cloth to retain the qualities given to it by sizing, which has now become of a far more scientific character than formerly. The main secret, however, of getting the right sizing, is in the boiling. There are several makes of machinery for applying the size to the yarn, also for drying the yarn afterwards. The warps for weaving are made of single threads mostly, but sometimes of doubled yarn; for doubling there is special machinery. The object is to give the threads a twist in the opposite direction to the twist of each single thread; this renders the doubled yarn stronger, smoother, and more elastic than a single thread would be that is equal in counts to the doubled thread. Doubled yarn is mostly used in sewing cotton and lace, and in making heavy fabrics like sail-cloth. Yarn is also 'gassed' before being woven. It is run through gas-flames to take off all loose fibres adhering to the surface. Yarn is gassed principally for the manufacture of sewing threads, lace, and mercerised goods. Before weaving also, yarn that has to undergo bleaching or dyeing is reeled into hanks of a suitable size. Yarn for export purposes is also reeled into hanks of 840 yards of yarn each.

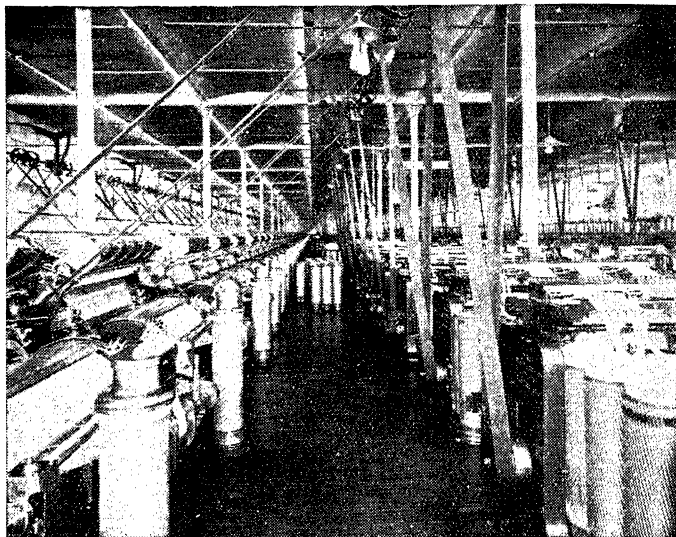
Weaving is an ancient art. Woven goods were used by the Egyptians over 6000 years ago. Woven cloth has been preserved as specimens of work of the lake dwellers of prehistoric times. The shuttle is mentioned in the Bible and other ancient books. The art of weaving consists in interlacing a continuous thread amidst a series of parallel threads. No doubt weaving was carried on in its primitive forms till the invention of the fly-shuttle by John Kay of Bury in 1733. This gave a great impetus to

the manufacturing trade of Great Britain. Before this shuttle with its apparatus for sending it to and fro across the lathe of the loom, it was the custom to have two weavers for each loom, one at each end to throw back the shuttle. With Kay's introduction one weaver could manage a loom, and double the quantity of cloth woven each day. Of course, the invention was adapted to the hand loom. The steam power loom was first constructed by Dr. Cartwright, who was granted a patent in 1785. Kay had to fly from the country on account of the attitude of the workers towards inventions that displaced labour. Cartwright's first looms were also destroyed by mobs of working men. In 1813 there were about 2400 power looms in the United Kingdom; in 1914 there were 805,452 looms engaged in cotton-weaving; in 1929 there were 739,887, the proportion of the world's looms owned by Great Britain having decreased by over 3 per cent. since 1914. In the U.S.A. there are 747,379 looms. Like spindles in spinning, looms have continued to increase in speed. Prior to the invention of Kay's fly-shuttle, looms did not average twenty picks per minute. A 'pick' is the passing of the shuttle containing cops or spools of weft through the opening of the warp threads carried by the operation of shedding; or in simpler language, a pick is the passage of the shuttle across the looms.

Weaving is generally divided into the manufacture of grey goods and coloured goods. The quantity exported each year amounts to 82 per cent. of the total production in the United Kingdom. The loom invented by Cartwright gave the first suggestions of all the automatic motions that have been added to looms since, such, for instance, as warp-stop motions, weft-stop motions, let-off and take-up operations. The complete power loom was constructed by Richard Roberts in 1830. Other principal inventions that have been added to looms are shedding motion, 1803; revolving temple, 1816; multiple harness motion, 1821; weft fork, 1821; first automatic shuttle changer, 1834; improved weft fork, 1834; picker check, 1838; improved temple, 1840; further improved weft fork, 1841; loom brake, 1845; automatic let-off, 1837; rocker motion, 1859; loose frog, 1863; double beam let-off, 1867; practical self-threading shuttle, and broad loom shuttle motion, 1868. These patents form the basis of automatic weaving. Improvements have been added to them from time to time, the most effective being the drop-box motion, to oper-

ate the rising and falling of the shuttles according to their use for putting in different shades and colours to make up the patterns of the cloth. There are now various warp stop motions for controlling the warp threads and stopping the loom immediately a thread breaks. There are also various automatic motions for controlling the letting-off of the warp from the beam. Similarly, there are many patent weft forks to stop the

Mercerising was invented in 1850 by John Mercer, a calico-printer of N.E. Lancashire. There are now many patent methods in use. The process of mercerisation is to give to cotton, yarn, and cloth the appearance of silk, to prevent shrinkage, and to give to the vegetable fibres a greater attraction for dyes. In many cases mercerised cotton has displaced silk; indeed, it has such a lustre that it can be scarcely distinguished from



[Courtesy of Cotton Spinners' Association]

INTERIOR OF A MODERN COTTON FACTORY
(Carding Room)

loom automatically, when the weft breaks as the shuttle flies across the loom. There are several devices, too, for feeding the looms with shuttles as those in operation become empty of weft. These labour-saving introductions have made it comparatively easy for one weaver to manage four and six looms, as in the ordinary Lancashire loom, to sixteen and twenty-eight, and even up to thirty-two as in the latest Northrop type of automatic looms. Other processes enter into the manufacture of cotton fabrics which hardly come within the scope of this article. These include bleaching, dyeing, printing, finishing, and mercerising, as well as testing yarn and cloth by chemical means.

silk. Mercerisation also increases the strength of yarn and cloth. Its action is to remove such resistance to dyes as arise from wax, oil, and other natural colouring substances always present in cotton fibres. As a result of mercerisation the yarn has been noticed to have increased in strength to the extent of 50 per cent. Yarn for mercerisation is usually specially spun for the purpose, and it must be singed or gassed. The bleaching, dyeing, and finishing of cotton have developed considerably of recent years. The bleaching is now carried out at all stages of manufacture—those of raw cotton, slubbings, rovings, cops, cheeses, hanks, and warps, and in the cloth pieces. By far the

greater quantity, however, is bleached in a woven state. Dyeing also is now carried on at all stages of manufacture. Of late years, the practice of dyeing yarns in forms other than in hanks has grown considerably. The development has not only increased economy in the cost of production, but also through the gradual introduction of a whole range of colouring matters faster than the majority of the direct dyes, and almost as readily applied. Warps, also, are not only dyed in the rope form in the stereotyped roller-card-squeezer machine, but frequently at full width through slasher-like machines, and also in the beam state wound on strong perforated tubes; they are also sometimes treated similarly in the compact ball in special machines. There are several methods of bleaching, but the old chloride of lime bleach is still the most successful, both in regard to results and cost. Calico printing is now carried on extensively. In this process there are four distinct operations as follow: Preparation of the cloth for printing; application of the colouring matter; the fixing of the colouring matter; and the finishing. The printing rollers are engraved in various ways. Hand engraving is applied mainly to very fine work. The pentagraph method is used for bold designs, this being an etching process on a coating of varnish. Photo-etching is also applied for transferring the necessary design on to the copper rollers used in the printing machines. Fine designs are also implanted on the roller by a process of milling; in this case the copper roller is run over hardened steel rollers which contain a relieved impression of the required design.

It is only necessary to add that the British cotton industry is carried on mostly within a radius of thirty or forty miles of Manchester, where the humidity of the atmosphere is highly suitable for spinning and weaving. The area also has a good supply of coal and water. Spinning is done in S. Lancashire, principally in the districts of Manchester, Oldham, and Bolton. Oldham town is the centre of the coarse-spinning area with about 18,000,000 spindles, and Bolton is the centre of the fine-spinning area. Cotton weaving is mostly confined to the N. and N.E. of Lancashire, the prominent districts being Blackburn, Preston, and Burnley. Blackburn and Burnley dists. have about 100,000 looms each. The capital invested in the British cotton industry has decreased by 10 per cent. since the post-war boom of 1920. Ten years of depression have been caused by foreign competition,

especially in the Far-Eastern markets. About 40 per cent. of the pre-war export trade has been lost, and home consumption only amounts to about 25 per cent. of the cotton goods produced in Lancashire. Exports to India have dropped by half, owing to Indian home manufacture and to Japanese competition. Japan is producing annually a thousand million lb. of yarn and a thousand million yards of piece goods, an increase of over 100 per cent. since 1910; and China has also increased its cotton manufacture. The U.S.A. are also competing in foreign markets, having now become an exporting country. The American cotton industry is in a flourishing condition, owing to the large domestic consumption of cotton goods, the use of automatic machinery, and the enterprise which discovers new uses for cotton products. In 1927 the U.S.A. exported 564,883,855 sq. yards of cotton cloth, valued at 76,738,437 dollars. The annual value of British exports of cotton cloths for the year 1929 (provisional figures) was £99,264,000 and of cotton yarns £20,753,000. The quantities were: cloth, 3,764,851 linearyards as against 7,075,252 yards exported in 1913; yarn, 166,637,000 lb. as against 210,099,000 lb. exported in 1913. The use of cotton in England for manufacturing purposes dates back to the thirteenth century. The first account that can be traced of the importation of raw cotton was in 1298. In all probability, it was brought from Portugal, and was used exclusively in the making of candlewicks. But at the commencement of the fourteenth century practically all our cotton and woollen fabrics were sent from other European countries. Flemings were encouraged to come to England by Edward III. in 1328, and they settled in Manchester and laid the basis of the British manufacture of cotton goods. They founded what became the famous 'Manchester Cottons,' and as is now well known, Manchester developed into, and still remains, the world's greatest cottonopolis. It was these imported Flemings that paved the way for the valuable mechanical inventions, mostly of Lancashire origin, that gave the British textile trade a start of all other nations. For the first thirty years of the eighteenth century practically no progress was made in the cotton industry in England. The importation in 1790 was 30 million lb., and 459 million lb. in 1840. But eight years later commenced those great inventions which revolutionised the manufacturing world, and upon which, along with the steam and

engineering inventions of James Watt, the cotton factory system was founded. Cotton goods are now exported by us to about fifty countries. Our chief markets for cotton piece goods are India, Australia, Brit. W. Africa, Netherlands, Dutch E. Indies, Argentine, Switzerland, Germany, Egypt, and China. With regard to the number of persons employed in the cotton industry of the United Kingdom, the Balfour Committee Report records 569,000 in 1927, 40 per cent. male and 60 per cent. female. Hours of labour are 48 per week. The average weekly wage of an operative spinner is 31s. 6d.; of a weaver 33s. 6d. The average wage of all men is 47s. a week; of all women, 28s. 3d. In July 1929 there were 80,000 unemployed.

The growing of cotton and its manufacture have for many decades played a very large part in the economic life of the U.S.A. Although the farmers of the S. states have in the past fifteen years taken to varying their crops, cotton is still by far the most important element in farming in the S. The total annual value of the cotton crop of the U.S.A. has averaged something like 1500 millions of dollars. The leading cotton states have been Texas, with 17,743,000 acs. devoted to its growth and producing over 5,000,000 bales; Mississippi, over 4,000,000 acs. and 1,475,000 bales; Arkansas, 3,681,000 acs. and 1,246,000 bales; Alabama, 3,534,000 acs. and 1,109,000 bales; Georgia, 3,728,000 acs. and 1,029,000 bales; Oklahoma, 4,243,000 acs. and 1,205,000 bales.

In the early days of cotton manufacture, the raw material was grown in the S. and manufactured in the N., principally in the New England states which had almost a monopoly of the business. Since the Great War a veritable revolution has taken place in the industry. With water power, cheap coal and cheap labour in the S., it suddenly occurred to business men that it was more economic to manufacture cotton right in the section where it was mainly grown. The result is that to-day the S. has more spindles in operation than New England. The last figures showed the S. with 18,282,000 spindles as against 13,815,000 in New England. The S. in its manufactures consumed 5,114,000 bales, whereas New England used only 1,438,000. The latest figures—those for 1928—show that in the order of spindles employed the leading states ranked as follows: Massachusetts, N. Carolina, S. Carolina, Georgia, Rhode Island; so that out of the first five, two are New

England states and three are S. states.

See *The Cotton Year Book* (Marsden & Co., Manchester); J. T. Broadbent, *A Cotton Manual* (Fall River); A. B. Shepperson, *Cotton Facts* (New York); F. H. Bowman, *Structure of the Cotton Fibre*; *Annual Reports*, International Federation of Master Cotton Spinners' and Manufacturers' Associations; *Lancashire Cotton Spinners' and Manufacturers' Directory* (John Worrall, Ltd., Oldham); Bowker, *Lancashire under the Hammer*; Todd, *The Cotton World*; Bader, *World Developments in the Cotton Industry*; Hubbard, *Cotton and the Cotton Market*; Wood and Wilmore, *The Romance of the Cotton Industry*; and Skinner's *Cotton Directory*.

Cotton Weed, or *Diotis maritima*, is found chiefly on rocks round the coast of Britain, Western Europe, and the Mediterranean. It is a perennial, and is covered with long silky hairs.

Cotton Wool, the name given to cotton in its raw, woolly state as gathered from the balls or capsules of plants of the genus *Gossypium* and order Malvaceæ (*Gossypium herbaceum* or *album*, *G. barbadense* or *nigrum*, *G. arboreum*). It consists of the soft, downy fibres ($\frac{3}{8}$ to 2 ins. long) surrounding the cotton-seeds. These hairs or fibres are separated from the seeds and freed from impurities, wax and fatty matters being removed by boiling in dilute caustic potash. Bleaching-powder and hydro-chloric acid are used in preparing C. W. for use, and it is frequently washed. Prepared sheets or rolls of it are used like cotton batting for stuffing and quilting. A soft, downy substance resembling fine wool, it is usually enclosed between glazed surfaces for such purposes, not very thick, and sold by the yard. A specially prepared kind is used in surgery for dressing wounds, etc. It is absorbent, soft, and elastic, and is often steeped in disinfectants. See COTTON, WADDING.

Cotton-worm, the popular name of the larva of *Aletia xylinæ*, a species of Noctuidæ, or owl-moths, nearly allied to the army-worm. This caterpillar is to be found in both N. and S. America, where it ravages the cotton crops and leaves other plants alone. The destructive nature of this creature sometimes costs the United States several millions of pounds in one year.

Cottus, the genus of acanthopterygious fishes which includes the bull-heads and miller's thumbs, is typical of the family Cottidæ. The species are to be found round the coasts and in fresh water of the N. temperate zone.

Cotyledon, (1) a genus of plants be-

longing to the order Crassulaceæ. They are to be found in most parts of the world, especially S. Africa, and owing to their succulence they grow in dry situations, on rocks, walls, etc. There is only one British species *C. umbilicus*, the Wall Pennywort, common chiefly in the W. and S. of England; this has a spike of greenish-yellow pendulous flowers which often take on a pinkish tinge when fading; it flowers throughout the summer. (ii) the seed leaf of a plant. In some plants, e.g. broad bean, the Cs. are the lobes of the seed itself, and contain a store of food for the embryo on germination; The existence of one or more Cs. is the basis on which flowering plants are divided into the two classes of Monocotyledons and Dicotyledons.

Cotys, or **Cotyto**, a Thracian goddess, whose festival, the 'Cotyttia' was celebrated during the night and which resembled that of Cybele. She was afterwards worshipped at Corinth and Athens.

Coucal, or **Centropus**, a genus of bush-birds of the family Cuculidæ; the species inhabit Asia, Africa, and Australia. They are strong-billed birds which feed on small animals, from insects to young birds, and in habit they are chiefly terrestrial. Unlike many of their allies, they build their own nests. *C. Sinensis*, the crow-pheasant, is an Asiatic species.

Couch, Sir Arthur Thomas Quiller-, see QUILLER-COUCH, SIR ARTHUR T.

Couchant, a term in heraldry, used to describe the position of a beast lying down with its head up. If its head rests on its paws it is dormant.

Couch-grass, or *Triticum repens*, a weed which infests agricultural lands. The name is a corruption of quitch grass or quick grass. The root contains sugar, and is used medicinally.

Coucy le Château. Fr. tn. 10 m. due N. of Soissons. The fine castle was destroyed in the Great War by the Gers. when they withdrew to the Hindenburg Line in March 1918. During the final Ger. offensive it was taken in April 1918 by the Ger. forces in their attack on the Aisne-Oise Canal.

Coucy, Raoul (Renaud) de, a Fr. troubadour of the twelfth century, who became Châtelain de C. in 1186, and took part in the Third Crusade (1189-91), being killed by the Saracens in 1203. His few songs were published by Rath as *Die Lieder des Castellan von Coucy*, 1883. He was the hero of *Le Roman du Châtelain de Coucy et de la Dame de Fayel*, a romance of the fourteenth century (perhaps by one Jakemon Sakesep). Crapelet's edition appeared in 1829, a

reprint in 1895. See Gaston Paris, *Romania*, viii., 1879.

Coué, Emile (1857-1926), apostle of 'auto-suggestion' as a method of cure for disease, was b. in Troyes, France, Feb. 26, 1857. He carried on business as a chemist at Troyes, 1882-1910, and was led, by an accidental occurrence in his business, to belief in the curative power of imagination and expectation. His fame was almost entirely due to his sincere simplicity and charity. He opened a free clinic at Nancy in 1910, and after the War lectured throughout France and in England and America—on his famous text: 'Day by day and in every way I am growing better and better.' Died at Nancy, July 2.

Couéron, a tn. of France, situated on the Loire, in the dept. Loire-Inférieure. Pop. 6,060.

Coues, Elliot (1842-99), an American ornithologist and biologist, b. at Portsmouth, New Hampshire, U.S.A. Having graduated at Columbia University, he became an assistant surgeon in the United States army, and made studies in the fauna and flora of the neighbourhoods where he might be stationed. He was attached later to the Northern Boundary Commission as surgeon and naturalist, and then to the Geological and Geographical Survey of the Territories. He resigned his commission in 1880 and gave himself up wholly to scientific pursuits. He was professor of anatomy at Washington, and was elected to the National Academy of Sciences. C. founded the American Ornithologists' Union and edited their journal, *The Auk*. He was also assistant editor and contributor to the *Century Dictionary*. His chief works are: *Key to North American Birds*, *Field Ornithology*, *Birds of the North-West*, *Birds of the Colorado Valley*, *New England Bird Life*, and *Dictionary of North American Birds*, 1882.

Cough, an explosive expulsion of air from the respiratory passages produced by reflex action. The nerves of the mucous membrane lining the upper air passages are particularly sensitive to irritation caused by foreign substances or inflammation. The action of coughing consists of a deep inspiration, followed by the closure of the glottis. The expiration suddenly bursts open the glottis, producing a current of high velocity which tends to sweep obstructive particles outwards through the mouth. The action, which is not under voluntary control, thus has a salutary effect under ordinary circumstances, though it is accompanied by disturbing and exhausting

conditions which might possibly become unpleasant, if not dangerous. Coughing may be caused by irritation in the nasal passage, pharynx, larynx, trachea, bronchial tubes, or lungs, due to the presence of particles of dust or food, or to inflammation caused by a 'cold.' The breathing of acrid vapours has the same effect, and gastric or purely nervous disturbances may constitute a cause. Some varieties of C. may be recognised by their characteristic sound: pleurisy gives rise to a half-suppressed C., bronchitis causes a loud and explosive C., whooping C. is accompanied by a violent inspiration which causes the characteristic 'whoop,' while the purely nervous C. has an affected sound. The treatment depends on the predisposing cause, as it is often inadvisable to check a C. as such. It is to be observed, however, that continued coughing produces an ultra-sensitive condition of the respiratory passages, and, as so often happens, nature's method of eliminating irritating substances may be too vigorous for the comfort of the organism as a whole. In young children, coughing may produce hernia, and there is possible danger of rupture of blood-vessels in consumptive patients. Remedies fall into two classes: those tending to help in the expulsion of irritating substances, and those tending to allay the sensibility of the nerves causing coughing. Examples of the former class are such expectorants as ipecacuanha, tartar emetic, and squills, while preparations of opium, aconite, and bromides act as sedatives. It often happens that a slight C. becomes disturbing at night owing to the warmth of the bed clothes tending to congestion of the small blood-vessels of the wind-pipe. A soothing application in such a case is a wet cloth wrapped round the neck and covered with a dry towel to prevent dripping.

Couguar, *see* PUMA.

Couillet, a com. of Belgium. Hainault prov., very near Charleroi. It has ironworks and furnaces. Pop. 12,600.

Coulmiers, a vil. of Loiret dept., France, 12 m. from Orleans. In 1870 the Germans under Von der Tann were defeated here by Aurelle de Paladines.

Coulomb, the practical unit of quantity of electricity, being the quantity conveyed by a current of one ampere in one second. It is so called after the famous French physicist and engineer.

Coulomb, Charles Augustin de (1736-1806), a French scientist, b. at Angoulême. He is well known for research work in connection with

magnetism and electricity, and he invented the torsion balance for measuring the force of electric and magnetic attraction. In 1779 his essay, *Théorie des Machines Simples*, secured a prize offered by the Academy, of which he afterwards became a member.

Coulommiers, a tn. of France, and cap. of an arron. in the dept. of Seine-et-Marne, 13 m. S.E. of Meaux. Pop. 6410.

Coulsdon, an urban dist. of Surrey, England, Wimbledon division, about 4 m. from Croydon. Pop. 21,491.

Coulter, John Merle (1851-1928), American botanist and educationalist, b. Ningpo, China. Educ. at Hanover College. Botanist on the U.S.A. Geological Survey in the Rockies, 1872. Professor of Biology at Wabash College, in 1879; Professor of Botany at Indiana University, 1891; and then, successively, President of Lake Forest Univ., Botanical Professor at Chicago Univ. (1896-1925), and adviser at the Royce Thompson Institute of Plant Research, Yonkers, till his death. Member of several European and American scientific societies; fellow of the American Academy of Arts and Sciences; and president of the American Association for the advancement of Science (*q.v.*) in 1918. Besides doing research and educational work, he lectured on the relationship between religion and science. Co-operated in the foundation of the *Botanical Gazette*, 1875, of which he was editor. Publications: *Manual of Rocky Mountain Botany* (rev. ed. 1909); *Plant Relations* (1899; 1910); *Plant Structures* (1899; 1904); *Plant Studies* (1902; 1904) *A Text Book of Botany* (1906); *Fundamentals of Plant Breeding* (1914); *Evolution in Sex Plants* (1914); and *Plant Genetics* (1918).

Coumarouna odorata, or *Diptyryx odorata*, the species of Leguminosæ which yields the sweet-scented tonga bean of the perfumers. It is a native of French Guiana, where it forms a large forest tree, locally called coumaron. The Creoles string the seeds into necklaces, and also put them among their linen both for their scent and to keep away insects.

Council (Lat. *concilium*, from *cum*, together, and root *cal*, to call), an assembly of ecclesiastical dignitaries for the purpose of regulating some point of faith or discipline. The history of church Cs. can be carried back to the second century A.D., when the churches of Asia Minor held Cs. to decide against Montanism. These early Cs. were evidently of a somewhat informal nature. Neither their composition nor their jurisdic-

tion was clear. At various times more important Cs. comprehending a diocese or a province were called, but the rise of œumenical Cs. throws these into the background. These 'general' Cs. were convoked by the emperor. Bishops alone, or the representative priests or deacons of absent bishops, had the right to vote in early time. Abbots were later included, and cardinals who held no bishopric. At the Vatican council cardinals, bishops, and generals of religious orders were allowed to vote. There is not the slightest proof that the papal legates exercised the presidency. Even Ultramontane writers of the Roman Church agree that there is no more than a 'probability' that they did so at Nicæa. The question as to the superiority of the pope to an œumenical C. was hotly contested during the Middle Ages, but Roman Catholics have now had the matter settled for them by the Vatican C. Many mediæval theologians also held that the decisions of a general C. were only binding when they were received as such by the whole church, and this practically resolves itself into a question as to which Cs. are œumenical. St. Augustine, in a treatise against the Donatists, affirms that plenary Cs. assembled from the whole Christian world may be corrected, but by the beginning of the seventh century it was generally held that general Cs. were infallible. The modern Roman Catholic theory is that the decrees of a C. only become binding when ratified by the pope. Though there is some difference in the manner of numbering the œumenical Cs., the following method, that of Hefele, is the one generally adopted in the Roman Church: (1) The first of Nicæa (325 A.D.), held in the height of the Arian controversy at the summons of Constantine, drew up the major part of the Nicene Creed. (2) The first of Constantinople (381) completed the Nicene Creed, defining the deity of the Holy Spirit. (3) The C. of Ephesus (431), held to defend the faith against the Nestorians, safeguarded the personality of Christ by giving the title of *θεοτόκος* (Mother of God) to his mother. (4) The C. of Chalcedon (451) condemned the opposite heresy of Eutyches. (5) The second of Constantinople (553), held against Nestorianism. (6) The third of Constantinople (680) condemned the Monothelite heresy. (7) The second of Nicæa (787) was concerned with the iconoclast controversy, and defined the respect to be paid to images. (8) The fourth of Constantinople (869) attempted to secure the peace of the Eastern and Western churches by de-

posing Photius of Constantinople, who had unjustly obtruded himself into this see. These eight Cs. were convoked by the emperor, and the first seven alone are recognised by the Eastern churches. All the rest are subsequent to the Great Schism. The four Lateran Cs. (Nos. 9-12) dealt with questions of discipline and condemned the Waldenses and Albigenses. The dates are 1123, 1139, 1179, 1215. In 1245 was held the first of Lyons (No. 13), in 1274 the second of Lyons (No. 14). The 15th C. was held at Vienne in 1311. The 16th, the C. of Constance (1414-18), ended the scandal of the rival popes. Then came the Cs. of Basel (1431 ff.) and Ferrara-Florence (1438-41), usually combined as No. 17. The Cs. of Lateran V. (1512-17) and Trent (1545-63) were reforming Cs. The 20th, held at the Vatican in 1869, defined the infallibility of the pope. The great work on the subject is Hefele's *Konzilien-geschichte* (9 vols.), 1855-90.

Council Bluffs, a city of S.W. Iowa, U.S.A., cap. of Pottawattamie co., near R. Missouri, on the Union Pacific, Chicago and North-Western, and other railways. Railway bridges connect it with Omaha, Nebraska, across R. Missouri. High bluffs affording a magnificent view border it on the E. There is a state institution for the deaf and dumb. The manufactures include iron, agricultural implements, machinery, wire-fencing, and carriages. It has large cattle-yards, flouring-mills, and grain-elevators. Pop. 42,048.

Council Drafts, documents drawn on the Governor-General of India in Council by the instrumentality of which merchants or other persons in England may transmit money to other persons in India.

Council of National Defense (U.S.A.), a body created by Act of Congress in August 1916, and inaugurated in the spring of 1917, to co-ordinate the industries and resources of the nation, so that their immediate concentration and utilisation in time of need might be rendered practicable. It included the Secretaries of War, Navy, Interior, Agriculture, Commerce and Labour, and it was responsible for the creation of several organisations, each of which had special functions bearing directly on the successful prosecution of the War, viz., the War Industries Board, which dealt with the equipping and arming of the forces, the Purchasing Commission, which dealt with supplies for the Allies; another body which dealt with merchant shipping; and a Woman's Committee for social service and welfare work, and home and foreign relief work, for women

and children. The Council was assisted by an Advisory Commission. The principle underlying its formation was adopted throughout the States, and State Councils of National Defense were formed with duties similar to the parent body. A notable member of the Council of National Defense was Samuel Gompers, then President of the American Federation of Labour. The Council was dissolved after the Great War.

Coundouriotis, Paul, Gk. admiral and President; b. April 14 (n.s.) 1855, in the isle of Hydra. Successfully commanded navy in War of 1912-13. Minister of Marine, 1915 and 1917-19. Regent on death of King Alexander, 1920; and again on departure of King George II, Dec. 1923. In April 1924, proclaimed President. Resigned March 1926, but resumed on Aug. 25. Re-elected June 3, 1929. Resigned Dec. 9, 1929.

Counsel. See ADVOCATE and BARRISTER.

Counsellor, in law, one who gives advice in legal matters; now always termed 'counsel'. The term C. is retained as the full description of a king's counsel in the ceremony of calling new 'silks' within the bar. The peers of the realm are hereditary Cs. of the Crown.

Count (Lat. *comes*, a companion), a name derived from classical times, practically synonymous with the English word 'earl' of the present day. In the earliest times it was merely the name given to an attendant, but those who were the attendants of the Roman emperor came, by reason of their office, to be much more important officials than mere attendants, hence the meaning of the word changed slightly. This was also the case under the Emperor Constantine, who made the word a title of some of his officials. Under the kings of France the word also meant more than attendant, the *comes palatii*, or C. of the palace, being the second highest official of the state. He eventually came to act as the representative of the king during the absence of the latter. This same title was used also in other countries, and the 'Cs. palatine,' as they were called, ruled over certain provinces and made the title hereditary by handing it down to their eldest son. Later on, however, in France there were numbers of people who bore the title of C., many of them merely assumed by the people who owned them, and so pure courtesy titles. This title, however, does not exist in England, the nearest approach being that of an earl's wife, who is a countess. In Germany the 'graf' seems to

have been identical with the C. of other countries; the word still remains in the English words *margrave* (or *marquis*) and *landgrave*.

Counter: (1) (Lat. *computare*, to reckon). A round piece of metal, wood, or some other substance, used by the ancients in making calculations, now only for reckoning points in card games, gambling games, etc. From the original sense of 'a means of counting money' comes the use of the word in shops for the barrier across which goods and change are handed. (2) A circular parry in fencing (from Lat. *contra*, against). (3) A blow given as a parry to the opponent's lead in boxing.

Counterfeit, see COINING.

Counterfort, a term used in architecture to denote a buttress or arch built against a wall to strengthen it. Cs. are frequently used when outward pressure is exerted on the opposite side of the wall by heavy constructional work, and in terraces to resist the pressure of soil.

Counterguard, the term used to designate the rampart built lower than and running along the length of a bastion or ravelin, a ditch lying between them.

Counter Irritants form a class of remedies used externally, which by setting up irritation relieve pain or congestion elsewhere in the system. Their effect is probably due to reflex action, caused by the impression they produce on the nerves of the skin. They are divided into three classes: (1) *Rubefacients*, which increase the heat and redness, e.g. hot water; (2) *Vesicants*, which produce blisters, e.g. Cantharides; and (3) *Pustulants*, of which croton oil is an example. The use of the stronger C. I. should only be under medical advice, as great harm can be done by careless or injudicious treatment.

Countermine, see MINES. MILITARY.

Counterpoint, a musical term which has been cleverly defined as 'the art of combining melodies.' The name is found in use in the fourteenth century, when a system of notation by 'points' was in vogue. A single melody was shown by a line of points, and C. was formed by the addition of one or more lines of points to the original, each line denoting a distinct melody, but so contrived that when the notes were produced at the same time, the whole formed a correct harmony. This is known as 'strict C.,' and the rules were closely followed for many years, although in later music the laws have been widely relaxed, perhaps with the result of reducing the rich effect acquired by rigid adherence to the rules. When the melodies are so written that their position can be

altered without loss of harmony by the transposition of either below or above the other one, then the combination is known as double C. 'Triple,' quadruple, and larger combinations of C. are also used, but are only possible at the octave, and in these cases the melodies are so arranged that any one of them may be used as a bass to the remainder. Bach is generally considered to be the greatest exponent of the art of contrapuntal writing, while there are many text-books and writings on the subject, an outstanding work of the last century being that of Cherubini.

Counterpoise (from the Lat. *contra*, against, and *pensum*, weight), the setting of one weight against another of equivalent power on a balance, thus forming an equipoise.

Counterscarp, a military term to denote that side of a ditch in fortifications which confronts the attacking force; the inner side being known as the escarp or scarp.

Countersign, a military term for a watchword or sign previously arranged to prevent unauthorised persons from passing a line of sentries.

Counter-tenor, name of the highest adult male voice, usually called 'alto.' See **ALTO** and **CONTRALTO**.

Countervailing Duty, a term applied to describe those import duties imposed by a gov. to protect home industries against unfair foreign competition or the dumping of foreign products on an unprotected market. Examples of countervailing duties are the duties fixed by the British Gov. under the Safeguarding of Industries Act.

Countervallation, or **Contravallation** (Lat. *contra*, against; *vallum*, a rampart), a term used with reference to fortifications, and signifying a chain of forts constructed round a besieged place to prevent any sorties by the garrison. These redoubts, which are put up by the besieging army, may be disconnected or joined by means of a parapet. This term, however, has practically ceased to be used, as in modern warfare the practice is very little resorted to, on account of the adoption of different tactics.

Countess of Huntingdon's Connexion, or **Huntingdonians**, a sect of Calvinistic Methodists founded in 1748 by Selina, Countess of Huntingdon (1707-91), widow of the ninth Earl. Coming under the influence of John Wesley, she became a member of his religious society in Fetter Lane in 1739, but when he renounced Calvinism she supported George Whitefield, and made him her domestic chaplain in 1748. Whitefield's personality and preaching

attracted many notable people to her house in Park Lane, including Lord Chesterfield, Bolingbroke, and Horace Walpole. Later the Countess built chapels in Brighton (1761), Bath (1765), Tunbridge Wells (1769), Worcester (1773), Spa Fields, London (1779), and many other places while in 1768 she instituted Trevecca College, near Talgarth, Breconshire, for the theological training of her chaplains. She seceded from the Church of England in 1783 when the bishops refused to ordain her protégés, thus becoming a dissenter; and in 1790 she evolved a scheme for the perpetuation of the Connexion after her death. In 1792, the lease of Trevecca House expired and Cheshunt College in Hertfordshire was opened, but was transferred to Cambridge in 1906. Spa Fields chapel was transferred to Golders Green in 1910. See the Annual Reports of the Countess of Huntingdon's Connexion.

Count Out. Forty members must be present either in a debate in the House of Commons or in a committee of the whole House, and it is the duty of the Speaker or Chairman (as the case may be) if he is not satisfied that there is a quorum of forty members to give the order for withdrawal of strangers and for the summons of members from the precincts of the House. Two minutes only are allowed for additional members to assemble, when if, after twice counting those present, it is found there are under forty, the House adjourns.

Country-dance, originally a dance practised by country people in the open air. The generic name for all Eng. dances of a rural or native origin. They were introduced into France (1715-23) under the erroneous name *contre-danses*, and passed on to Italy and Spain. The word is especially applied to dances with two long lines of an indefinite number of couples facing each other. The dancers are continually changing their places, as in the 'Swedish,' and 'Sir Roger de Coverley.' In recent years there has been in Great Britain a revival of interest in these dances, under the leadership of Mr. Cecil Sharp (*q.v.*), and this movement is now directed by a society. See Steele, *Spectator*, 2 (1711); Budgell, *Spectator*, 67; Murray, *New English Dict.*, ii.

County (derived from the Lat. *comitatus*, through the Fr. *comté*). County or shire is a term used to designate a specific area of a kingdom for administrative purposes. In the United Kingdom the boundaries of the counties in some cases confine districts which were formerly old kingdoms, notably Kent, Surrey, and

Sussex, while other counties have been formed by Acts of Parliament. The counties are themselves combinations of hundreds, and have their own officers for the administration of certain local matters and an elective county council. In the U.S.A. counties are divisions of the states made by the state legislature primarily for purposes of law, their powers differing widely in each state.

County Council created by the Local Government Act, 1888, as the unit of local government for the management of the administrative and financial business of a county or division of a county. Before the Act the vast increase in the activities of the state in matters of local government, found expression in the periodic creation of numerous local boards acting independently of each other, and in the gradual extension in all directions of the administrative duties of justices of the peace in quarter sessions. The consequent overlapping of local governmental areas, nearly every public authority dividing the country differently and with no reference to other divisions, led to a lack of coherent principle in the performance of these delegated state duties. The Act of 1888, by creating a body, in area and personnel truly representative of counties, effected a considerable measure of uniformity in the work of local government. The word 'county,' or administrative county, as used in the Act is not synonymous with 'county' in the ordinary sense. By adopting the existing town councils in the municipal boroughs (*see also* BOROUGH) as co-ordinate bodies with the new C. Cs., the term C. C. includes a number of towns with a population of over 50,000 each in the category of administrative counties. Means were provided for creating increasing towns administrative counties as occasion requires. Further, some counties possess more than one C. C., e.g. Yorkshire is divided into three administrative counties, the N., E., and W. Ridings, the W. Riding comprising so much of the wapentake of the county of York as is not included in York borough; while the administrative county of London, under the London C. C., comprises the metropolitan portions of Middlesex, Kent, and Surrey. The C. C. consists of a chairman, alderman, and councillors without restriction as to sex. The chairman is elected for three years by the aldermen and councillors, and the aldermen by the councillors for six years, about half retiring every three years. Councillors are elected for three years. Clerks in holy orders

and peers owning property in the county may serve as aldermen or councillors, and, generally, the qualification for councillors is the same as for borough councillors. The chairman, if a male, is *ex officio* a justice of the peace for the county. Persons of either sex registered as county electors, or enrolled burgesses of any non-county borough, are qualified as county electors, the qualifications for the franchise being the same for men and women (Rep. of the People Act, 1928). The constitution of the London C. C. differs somewhat from that of other C. Cs. Each parliamentary division in London county elects two members to the council with the exception of the City, which elects four, making a total of 124 councillors. The twenty aldermen are elected as in the case of other councillors. The functions of the C. C. comprise a great variety of duties original and supervisory, and the Ministry of Health may transfer to it any such statutory powers, duties and liabilities of the Privy Council, or any Gov. department as appear to relate to matters of an administrative character arising within the county. The county police are under the joint control of sub-committees appointed by the C. C. and the justices of quarter sessions. The C. C. since the Education Act, 1902, is the educational authority of the district except within the limits of urban districts of over 20,000 inhabitants, and of boroughs of over 10,000 inhabitants. For educational purposes a C. C. may raise, or aid a district council in raising, any sum of money necessary up to a penny in the pound on the local rate. A C. C. has the same power of making bye-laws as a borough. It is also the highway authority for all 'County' roads (*See* HIGHWAYS and *infra*) and may make contributions towards the cost of maintaining and improving any highway or public footpath although not a county road; and it has special duties as to the repairs of county bridges. It has certain duties appertaining to public health, administering the Acts relating to noxious insects and pests, preventing abuses in the sale of bread and coal, and the spread of contagious diseases amongst animals (*see* CONTAGIOUS DISEASES (ANIMALS) ACTS), and the pollution of rivers. Under the Housing Acts, it may assume the powers of a defaulting rural district council in the duty of providing housing accommodation for the working classes, and is charged with the duty of electing a county medical officer of health. It can create and maintain industrial schools, reformatories, and lunatic

asylums for paupers. It may prepare draft schemes for small holdings and lend money to tenants purchasing small holdings. It sanctions the compulsory purchase of land for allotments to the working classes. It grants music, dancing, and race-course licences. It appoints the coroner (*q.v.*), for the shire, the county surveyor, and the public analyst. It may fix the boundaries of district and parish councils and make orders for grouping parishes into one administrative unit. Over smaller local governing bodies it exercises under various Acts large supervisory powers, and generally it is responsible for the proper working of the Local Government Acts within its boundaries. Its powers in relation to finance are considerable. It levies the county rate. It does much of the work once exclusively performed by Quarter Sessions. It supervises old age pensions committees. It sanctions loans by parish councils, and itself has large borrowing powers on the security of its annual revenue, subject to the control of the Ministry of Health: chiefly for the execution of permanent works. The revenue of the C. C. apart from the county rate is derived chiefly from royalties, fines, tolls, and rents, together with State subventions of a share of the moneys arising from estate duties and certain county licences, mainly those for the sale of intoxicating liquors. It administers the law against disfiguring the landscape by advertising hoardings. Very extensive powers have been vested in the London C. C. and others have been added. With the necessary modifications the Local Government Act of 1888 was extended to Scotland and Ireland. The Act of 1894 applies only to England and Wales. There has been a distinct trend in modern legislation to use more and more the machinery of the C. Cs. for the administration of local government. We have seen above that the Education Act of 1902 transferred to them work of the highest importance from a national point of view, and, as a result, there has been a perceptible levelling up in the standard of elementary education throughout the country. More work was given to them by the Local Government Act of 1929, which abolished Boards of Guardians and transferred the functions of the poor law authorities as from April 1, 1930, to the council of the county or county borough comprising the poor law area for which the poor law authority had previously acted. In view of the remarkable development in road transport in the last

two decades, the administration and maintenance of roads became a matter of vital importance, and the same Act made certain provisions with regard to them which affected C. Cs. As from April 1, 1930, the following were to be 'county' roads: (1) main roads; (2) roads constructed by a C. C. with the aid of an advance by the Road Board or Ministry of Transport; (3) roads declared by a C. C. to be main roads; (4) roads constructed under Development, etc., Roads, etc., Act 1909; (5) highways in rural districts which before April 1, 1930, were controlled by rural district councils; (6) 'classified' roads which were or are vested in urban district councils; (7) any ordinary road which a C. C. on application of an urban district council declares to be a county road or which the Ministry of Transport so declares on appeal by an urban district council. County roads, however, may cease to be such by an order of the Ministry of Transport on application of the C. C. An urban district council may claim to maintain a county road within its area but the C. C. must pay for the work. *See also* LONDON COUNTY COUNCIL.

County Courts are local civil courts established throughout England by an Act passed in 1846 for the purpose of recovering 'small debts and demands.' Originally the jurisdiction was limited to claims where the amount involved did not exceed £20, but by the combined operation of a series of Acts of Parliament the jurisdiction has increased to such an extent that they have absorbed a large amount of the business that would ordinarily have occupied the attention of the *nisi prius* courts of assize. Historically a C. C. is an ancient institution the evolution of which is to be traced from the judicial side of the shire-moot and the old Court of Requests or 'lesser Court of Equity for the hearing of poor men's suits.' The direct progenitor of the C. C. is, however, to be sought in the later Court of Requests and other small local civil tribunals, which took over much of the jurisdiction of the shire-moot. Subsequently the civil jurisdiction of the old C. C. to all intents and purposes ceased when a few years later the circuit judges of the Curia Regis were granted commissions of *nisi prius*. From that time the ancient C. C. became merged in the courts of requests down to 1846, when the latter, together with most other minor local civil courts, were abolished and a new kind of C. C. for the prosecution of small claims set up. By the Act of 1846 the country was divided into C. C.

districts. There are now fifty-nine such circuits, excluding London, with one judge for each circuit. By a later Act the Lord Chancellor is empowered to appoint two judges for any circuit provided the total number does not exceed sixty. The salary of a C. C. judge, originally £1200 a year, is now generally £1500 a year. He must be a barrister of seven years' standing and not over sixty years of age. A C. C. judge may neither practise at the Bar nor sit in Parliament. Actions in C. C. are tried by a judge alone, unless one of the parties demands a jury. A C. C. jury consisted formerly of five men, but the number is now eight. The overwhelming majority of cases are tried without a jury. A characteristic and inconvenient feature of C. C. procedure is the absence of *pleadings* defining the questions at issue. Various amending Acts have gradually enlarged the jurisdiction of the C. C., with the result that they now have unlimited jurisdiction in all common law actions where the parties consent in writing to the action being tried there; and further, jurisdiction (1) in all actions arising out of contract or tort (*i.e.* actionable wrong) where the debt demanded or damage claimed does not exceed £100; but no jurisdiction in actions of breach of promise of marriage, libel, slander, or seduction. (2) In equity suits where the amount or value of the matter in dispute does not exceed £500. (3) In actions of ejectment and the actions concerning title to land where the annual value or rent of the land does not exceed £100. (4) In probate and admiralty actions limited to £200 personalty and £300 respectively. (5) In remitted actions from the High Court, limited to £100 in the case of contract, but unlimited in actions of tort. A High Court judge has power to transfer to any C. C. for trial an action begun in the High Court by an impecunious plaintiff who would probably be unable to pay the costs of his opponent if he lost the action. The procedure in beginning an action is simple. The party wishing to proceed to law fills in a 'praeceipe,' which may be obtained gratis at the C. C. office. This praeceipe is a slip of paper on which plaintiff writes particulars of the action, the remedy or damages claimed, and the name and address of his solicitor (if any). An affidavit of the plaintiff showing the ground of the application must also be filed. A fee is payable on entry of the plaint, and if the claim exceeds £2, ordinary summonses must be served by the bailiff, for which an additional fee is chargeable. On the issue of a

summons a plaint note is given to the plaintiff. This is an acknowledgment of the fee paid, and gives the date when the summons is returnable. The summons is under the seal of the court and is served by a bailiff of the court.

County Hall, Westminster, is the headquarters of the London County Council. It is situated on a site of 6½ acs., part of which was reclaimed from the river foreshore, running northwards along the E. bank of the Thames from Westminster Bridge. The foundations for the building designed by Ralph Knott were laid in 1913, but the work was delayed by the War, and the C. H. was not formally opened until 1922. The style is a free treatment of Eng. Renaissance, and the total cost when the N. wing is completed will be about £3,333,000. The actual façade is faced with Portland stone, and the roof covering is of red tiles. There are nine floors, each containing about 100 rooms. The Council of 144 members meets in the Octagonal Council Chamber facing on to the Thames and the Members' Terrace. The Council determines the principles, but delegates administration to Standing Committees which meet once a week or once a fortnight. All the work of the London County Council is discussed and organised, and most of the detail planned and administered within the C. H., which, in addition to accommodating the Council and the twenty Committees, houses a staff of 3000 people.

County Rates are taxes levied by county councils (*q.v.*), in connection with local government expenditure to meet deficiencies not provided for out of revenue or local taxation grants. Some purposes for which a C. R. may be levied are the cost of the assizes and county sessions, half the cost of the county police, and expenses under the Education Act, 1902.

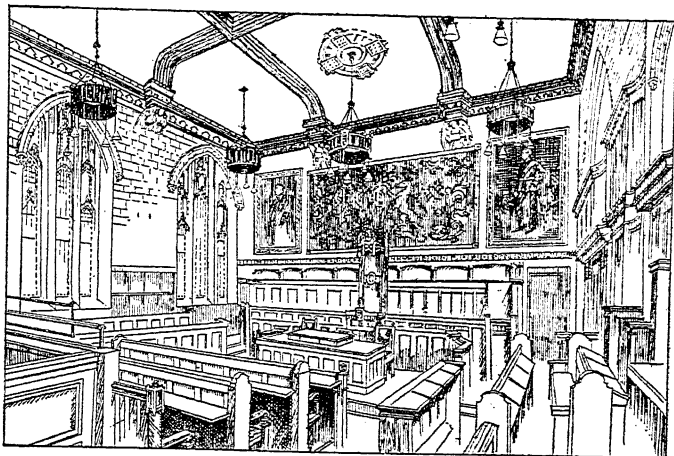
County Sessions, the general or quarter Sessions of the Peace for the county sit to try such crimes as statute law expressly permits them to try and hear appeals against summary convictions where a right of appeal is given by statute to the person convicted. C. S. must be held once every quarter at fixed times. If held intermediately by reason of stress of business they are called general Sessions of the Peace. The court is constituted by two or more justices of the peace presided over by a chairman. Generally speaking, the criminal jurisdiction of the C. S. is restricted to minor felonies and misdemeanour, the more serious crimes being tried at assizes. They are forbidden to try

treason, murder, or any capital felony or any felony punishable by penal servitude for life, abduction, bigamy, concealment of birth, forgery, libel, perjury, and a few other offences; but they may try burglary. They also exercise jurisdiction in rating appeals, the licensing of places for the sale of intoxicants, and cases concerning the removal of paupers.

Coup. A *coup d'état* is an arbitrary stroke of policy, carried out suddenly both violently and illegally by the ruling power, with entire disregard of the prerogatives of other parts of

remains of a Rom. camp, and the Cistercian Abbey, founded 1164 by Malcolm IV. Manufactures coarse linen, fabrics, jute, and leather. There are steam saw-mills and agricultural implement works. Pop. 2531.

Couped (Coupé), a term in heraldry used to describe the head or any limb of an animal, or a part of a plant, represented as cut off 'clean' and smoothly in a straight line. Where the representation is jagged and uneven, as if forcibly torn off, it is blazoned 'erased,' or 'slipped.' *Coupé* (from Fr. *couper*, to cut)



A COUNTY SESSIONS COURT

the body politic. The two most famous instances are Napoleon Bonaparte's 'C.' of 1799, ending the Directory by his 'whiff of grape-shot,' and that of Louis Napoleon, which broke up the National Assembly by force, 1851. A *coup de main* is a sudden and successful attack, made to capture a position instantaneously. A *coup d'œil* (glance) means a rapid, comprehensive view of a complicated matter, often used of the faculty of taking a general survey of a military position and estimating its advantages and disadvantages. *Coup de grâce* is the merciful final blow which puts a victim out of pain, hence a decisive or finishing stroke. A *coup de théâtre* is a trick of the stage, or any sudden sensational act.

Coupar-Angus, a par. and tn. of Perthshire, Scotland, near R. Isla, 12 m. from Perth, 15 m. from Dundee, on the L.M.S. Railway. There are

is also applied to an ordinary with extremities cut off so as not to reach the shield's boundaries. See Robson, *Brit. Herald*, iii., Gloss., 'Couped or Coupey,' 1830.

Couperus, Louis-Marie-Anne (1863-1923), Dutch poet and novelist. His first works were two collections of poems, *Een Lent von Vaerzen* (Springtide of Verse), 1884, and *Orchideen*, 1886. His first novel *Eline Vere*, 1888, a vivid picture of society at the Dutch capital, won him fame. He united in his writings the ideas and tendencies of both Fr. and Scandinavian literature. Other works are: *Noodlot*, 1890; *Eetate*, 1891; *Illusie*; *Majesteit*, 1893; *Wereldvrede*, 1894; *Metamorfose*, 1897; *Langs Lijnen van Geleidelijkheid*, 1899; *De Stille Kracht*, 1901; *Ober lichtende Drempels*, 1903; *Dionysus*, 1904. C. also wrote the fairy tales *Psyche*, 1897, and *Fidessa*,

1899. His translator, the late A. Teixeira de Mattos, made a great success with the Eng. version of *Van Ouden Menschen, de dingen, de bijgaan* (1906)—viz. *Old People, and the Things that Pass*, 1919. C. was entertained in London, June 1921. He *d.* at The Hague, of blood-poisoning.

Couple, in statics, consists of two equal forces acting in opposite directions along two parallel straight lines. It is impossible for a C. to keep a body in equilibrium, for any C. tends to rotate the body. The distance between the lines of action of the two forces is known as the arm of the C., and the moment is the product of one of the forces into the arm.

Couplet (from Lat. *copula*, a bond), any two lines of poetry rhyming together. They are usually of the same length and contain the complete expression of an idea. The poetic writers of Queen Anne's time made great use of the C. in aphoristic versification. Long poems in this rhythm necessarily become monotonous. Pope and Dryden used the heroic C. (rhymed iambic pentameters) frequently.

Coupon, a document attached to a share warrant, bond, or other negotiable instrument, indicating the dates on which dividends or other periodical payments will become payable. Share-warrants are a device for legalising the issue of fully-paid shares payable to bearer, and when issued the name of the shareholder is struck off the register, because as henceforth the holder is the person who happens to hold the warrant, the company neither knows who he may be nor who is entitled to the dividends. Hence the necessity for attaching Cs. dated with the successive dates on which dividends will be paid, during several years following the issue of the warrant, to the person producing them. The Cs. attached to bonds issued for any term of years represent the total number of periodical payments for interest, whether quarterly, half-yearly, or yearly, as will become payable, the date of such payments being printed on each C. On the date of any one payment maturing, the holder of the bond merely detaches the C. and presents it for payment at a specified bank.

Courante, or **Coranto**, a Fr. dance which was popular in the seventeenth century. The term is also used in music for a movement with a distinct rhythm generally forming part of a suite and coming immediately after the *Allemande*.

Courbet, Gustave (1819-77), a Fr. painter, chief of the realists. He left the study of theology for art, became

a pupil of Steuben, d'Angers, and Hesse in Paris, but was largely self-taught. C. was much influenced by Flemish and Venetian masters. He was a member of the commune, 1871, and in 1875 was condemned to pay the costs of re-erecting the Vendôme column, which he had caused to be pulled down. Among his portraits and figure-paintings are: 'Homme à la Pipe,' 1844; 'Man with a Leather Belt'; 'Fair Dutchwoman'; 'Casseurs de Pierres'; 'l'Enterrement à Ornans,' 1850 (now in the Louvre); 'Desmoiselles de la Seine.' C. is at his best with landscapes of his native Franche-Comté such as 'Combat de cerfs,' 'Remise de chevreuils,' 'The Wave' is now in the Luxembourg. See Muther, *History of Modern Painting*, ii. (1896); D'Ideville, *G. Courbet*, 1878; Estignard's *Vie*, 1897; Brownell, *French Art*, 1902.

Courbevoie, a suburb of Paris on the l. b. of the Seine. It is an industrial district given over to bleaching greens, textiles and chemical works. Pop. 48,890.

Courcelles, a commune in the prov. of Hainault in Belgium, about 5 m. N.W. of Charleroi, with coal and iron industries. Pop. 18,500.

Courier (derived from the Fr. *courir*, to run), the term applied to servants whose duty is to relieve their employer of trouble when travelling by making all the necessary arrangements for transport, hotel accommodation, securing passports, etc. Prior to the formation of the post office, messengers were employed to deliver letters and messages and were known as Cs. Important despatches to foreign embassies are still frequently delivered by the King's Messenger or Foreign Office Cs.

Courier (or **Courier de Méré**), Paul Louis (1772-1825), an eminent Fr. writer. In 1810 he published an edition of Longus' *Daphnis and Chloe*, and in 1821 his best known writing *Simple Discours de Paul Louis Vignerot*, in which he satirised the proposal to purchase Chambord for the Duc de Bordeaux. For this he was fined and imprisoned for two months. He *d.* at the hands of assassins in his own grounds at Touraine. As an author and satirical writer he was brilliant, rich in contemporary historical knowledge and classical quotations. His best publication is perhaps *Pamphlet des Pamphlets*, 1824. The whole of his works were collected by Armand Carrel and published in 4 vols. in 1830.

Courlan, Caran, Crying Bird, and Crazy Widow, the popular names of the wading-bird *Aramus scolopaceus*, which is found in S. America.

The bird is noted for its peculiarly dismal cry.

Courland, in Russia, see **KURLAND**.

Cours, a commune of France, in the dept. of Rhône, on the Trambouze, where cotton goods, called Beaujolais, are manufactured. Pop. 6000.

Coursing, the pursuit of hares by greyhounds, not by scent but by sight. In anct. times other game also was coursed, generally deer: the sport is described by Arrian about A.D. 150, also by other classic authors. Our own ancestors probably practised it as much to fill the larder as for sport. In Saxon and Norman times only nobles and landowners had the privilege of keeping greyhounds, but in the reign of Elizabeth rules for the sport of C. were drawn up by the Duke of Norfolk, and during the next century open competitions came into vogue. Still no regular club was formed until 1776, when Lord Orford founded one at Swaffham, Norfolk, and soon afterwards the Ashdown Park Club was formed, holding its meetings at Lambourn, Berks. The sport spread widely, some of the finest courses being on the Downs at Amesbury, Stockbridge, etc. After the passing of the Game Laws in 1831, C., which had hitherto been almost restricted to clubs, was more generally taken up, and in 1880 the passing of the Ground Game Act, greatly altering the conditions of the sport, led to the establishment of many 'enclosed' courses. These were much favoured by betting men, as the whole run could be watched from a stand, but it was found that the system encouraged breeding entirely for speed, training for other qualities being neglected, and with keen sportsmen open courses are now most in favour. The season lasts from about September to March, the Altcar or Waterloo meeting, which decides the championship, coming in February. The Waterloo Cup, 'the courser's Derby,' is so called from having been originated in 1836 by the proprietor of the Waterloo Hotel, Liverpool, who gave the cup and was lucky enough to nominate the first winner, Lord Molyneux's Milanic. In 1882 the *Greyhound Stud Book* was established, and no dog not appearing there with properly traced pedigree can compete at any meeting under the rules of the National Coursing Club, a representative association formed in 1858, which governs C. all over the kingdom. Courses vary a good deal in their character; some particularly favour speed, e.g., Kempton Park, Surrey, where at the January meeting the very fastest dogs are to be seen. But though speed is highly important, cleverness tells greatly in the estima-

tion of points, and it is in the breeding and training for *all* requisite qualities that judgment, skill, and luck are required. A competition is held thus: the slip-steward seeing that each slipper in turn is ready, punctually, with his brace of hounds in leash, a hare is started (at an open meeting by beaters), and when it has about 60 yds. start, the hounds are simultaneously released, and the judge follows the run on horseback. He decides the points as follows: on *speed*; the *go-by*, when a greyhound starts a clear length behind, and in a straight run gains a clear length's lead; the *turn*, bringing the hare round at a right angle or more; the *wrench*, turning it at less than a right angle; the *trip*, throwing it over, but failing to kill; the *kill*. The judge may declare a 'no course' if the trial is not satisfactory, or a 'tie' if points are equal. His decision is signalled by the flag-steward. The victory goes not necessarily to the greyhound that kills, but to the one that does most to make the kill possible. Some experienced dogs are artful, and manage to get the 'kill' themselves after leaving all the work to the others; this tendency has often been proved hereditary. C. in the Eng. style has been taken up in Australia and the U.S.A.; in the latter the prairie 'jack-rabbit' often takes the place of the hare.

Court, Presentation at, the formal presentation to the sovereign of subjects whose status entitles them to this honour. In monarchical countries this ceremonial function is considered as the highest honour, and serves as a credential. Having once obtained this privilege people may claim to be presented by their country's representative at any foreign court and to be received everywhere. In England, the names of all those desiring to be presented and of their presenters must be sent some days in advance to the Lord Chamberlain. The privilege is strictly guarded from abuse, and none are admitted unless accepted and approved of both by the sovereign and the Lord Chamberlain. Each lady who makes a presentation is required to become sponsor (in its fullest sense) for her presentee. Cases of undesirable introduction are rare, but should they occur a notice may be printed in the *Court Circular*, that 'the presentation is cancelled.' Those who are not British subjects may be presented to the King of England by their own ambassadors. At the end of Victoria's reign ladies were most frequently presented at 'drawing-rooms' held at Buckingham Palace in the afternoon. When the Prince and Princess of Wales

presided on her behalf, such presentations were by royal command counted as a presentation to the sovereign. Gentlemen are presented usually at levées at St. James's Palace, held in the morning. The first levée was held at Buckingham Palace, 1840. King Edward replaced the drawing-rooms by 'courts,' held at Buckingham Palace in the evening, but levées continue to be held at intervals also. There is an elaborate ceremonial at these functions, and full court dress must be worn by those invited. Presentations can be made in Scotland to the Lord High Commissioner to the General Assembly of the Church of Scotland at Holyrood Palace. Consult *Armstrong, Old Court Customs and Modern Court Rule*, 1883.

Courtaulds, Ltd., textile and artificial silk manufacturers, established in 1824 as Samuel Courtauld & Company. The production of artificial silk was begun in 1904, with headquarters at Coventry, and in 1910 factories were set up in the U.S.A., Germany, and Russia. The company was incorporated in its present form in 1913. Three years later it absorbed its only Eng. competitor, the British Glanzstoff Manufacturing Co., and by 1922 controlled the whole of the Eng. artificial silk industry. Up to that date from 1913 a net profit of £14 million had been made. In 1925 the international society of manufacturers in which C. have a share agreed to lessen international competition, and C. were also aided in this by a duty imposed on imported goods. Eng. prices were lowered following reductions in America and elsewhere, and in this year (1925) a record profit was reached of over £1 million, and a dividend of 25 per cent. was paid. Spinning factories are established at Halstead and Braintree in Essex, Halifax in Yorks, and Leigh in Lancashire. Other factories are at Flint, Coventry, Nuneaton, Wolverhampton, and Droylesdon, and the chemical works are at Manchester. The capital of the company is over £30 million.

Court Baron, the necessary court of a baron. It is partly administrative and partly judicial. Other courts at the manors were the customary court and court leet.

Court Circular, *The*, one of the oldest newspapers dealing with the interests and doings of Society. It was founded as a sixpenny weekly by Messrs. Maddick in 1856. The *Court News*, 1856, was incorporated in the *Court Circular*, 1864. F. M. Guedalla is its present owner.

Court Leet, an old court of record that originally had an almost plenary jurisdiction in the trial of

crimes. Any lord of a manor with a right of 'sac and soc' (the right to hold a court for one's tenants and the right to the amercements or fines respectively) was entitled to hold a C. L. Their decline followed on the passing of the statute of Marlborough, 1267, but Cs. L. are still occasionally held once a year before the stewards of certain lordships or manors.

Court of Appeal, *see* APPEAL.

Court of Arches, *see* ARCHES, COURT OF.

Court for Crown Cases Reserved, *see* CROWN CASES RESERVED, COURT FOR.

Court of Session, the supreme civil tribunal of Scotland. In its present form it was established in 1532 by the Act of Institution of the C. of S., as a development of previously existing tribunals which were generally independent committees of the Scottish Parliament. Originally composed of the Lord Chancellor and fourteen members or senators, the C. of S. now consists of thirteen judges, all laymen. It has an Outer House in which sit eight Lords Ordinary of co-ordinate jurisdiction, and an Inner House divided into a First and a Second Division, each Division consisting of four judges of co-ordinate jurisdiction. The president of the First Division is the Lord President; of the Second, the Lord Justice-Clerk. The two Divisions of the Inner House are mainly Appeal Courts, but they have an original jurisdiction in certain actions relating to division of common lands (commonalty), sale of bankrupt estates, curatory of the insane, and sale generally. At the hearing of an appeal from a jury case, which comes before the Division upon a Bill of Exceptions or motion for a new trial, the judge who presided at the trial sits along with the Division. Original actions in the Outer House are heard in the first instance before any one of the five Lords Ordinary selected by the pursuer (plaintiff), but certain causes are specifically appropriated to particular judges, *e.g.* the Second Junior Lord Ordinary has exclusive jurisdiction in appeals from Sheriffs in causes respecting church buildings. Appeals against valuations of lands and heritages, registration appeals, and election petitions are heard by specially constituted Cs. of S. The C. of S. exercises no criminal jurisdiction as such, but gives a civil remedy in cases of perjury, fraudulent bankruptcy, deforcements, and breach of arrestment, etc. The C. of S. has exclusive jurisdiction in exchequer, maritime, and teind (tithe) causes, and has superseded the consistorial and commissary courts in actions of status such as declarators (*q.v.*) of

marriage or separation, and the C. of S. alone may try questions of heritable right, unless the annual value of the subject-matter does not exceed £50, or the total value does not exceed £1000. The C. of S. may not review sentences and proceedings of a Church Court unless the latter has exceeded its jurisdiction or acted maliciously so as to violate a civil right, and where the value of the subject-matter in dispute does not exceed £25, the case may not be brought in the C. of S. There are two sessions, winter and summer, lasting from October 15 to March 20, and from May 12 till July 20, respectively.

Courtenay (Courtney), William (c. 1342-96), an Eng. prelate, fourth son of Hugh, Earl of Devon, and Margaret Bohun. He studied at Oxford, becoming chancellor of Oxford University, 1367; Bishop of Hereford, 1370; Bishop of London, 1375. He vehemently opposed Wycliffe and the Lollards, and as Wycliffe's prosecutor (1377) was involved in a quarrel with the Duke of Lancaster. C. became Archbishop of Canterbury, 1381-96. In 1382 he summoned a council, which met in the Black Friars' monastery to pass judgment on Wycliffe's heretical teaching. Wycliffe was allowed to go free, but many of his followers were compelled to recant. C. was a staunch upholder of the Church's rights, and discouraged interference from either king or pope, though ready to submit to their decrees in all other matters. See Hook, *Lives of the Archbishops of Canterbury*, iv.

Courten, Franz (b. 1853), a Flemish genre and landscape painter. His pictures of autumnal woods and desolate snow-covered stretches are particularly fine. Examples of his work are 'Golden Rain, Coros' (Brussels Gallery); 'After a Day of Snow'; 'Morning in the Campine', 1881; 'Auszug der Herde'; 'Ein frischer Morgen'; 'Die Wölfe des Meeres'.

Courtesy Titles, titles granted by general consent and custom to certain individuals, especially the near relations of peers, to which the holders have no actual legal right. Such titles are common in countries such as Great Britain which have various different orders of nobility. A peer may have as many as sixteen inferior titles (like the Duke of Athole), and while known himself by his highest title or titles, his eldest son bears one of the inferior titles by courtesy. The C. T. need not be the next highest, and may differ in different generations. It does not affect the legal status of the holder, who, as a com-

moner, is still eligible for the House of Commons. Younger sons of dukes and marquises take the title 'Lord,' while the daughters assume that of 'Lady,' still retaining it if they marry men of lower rank. The title 'Honourable' is applied to the children of earls, viscounts, and barons. In Scotland a viscount's or baron's eldest son is styled 'Master.' Similarly the judges of the Court of Session in Scotland are called 'Lord,' though they may not sign themselves thus.

Court-hand, the name for the Old Eng. style of handwriting, a modification of the Norman (as distinguished from the modern or Italian), which was used in the Eng. law-courts from the sixteenth century till abolished by George II. in the early eighteenth century.

Courthope, William John (1842-1917), an Eng. author, professor of poetry at New College, 1895-1901. Among his works are: *The Three Hundredth Anniversary of Shakespeare's Birth*, 1864; *The Genius of Spenser*, 1868; *Ludibria Lunæ*, 1869; *The Paradise of Birds*, 1870; *Addison* (in Eng. Men of Letters series), 1884; *History of English Poetry*, 1895-1909. He edited Pope's works (ten volumes, with a biography, 1871-89). C. was for a time joint editor of the *National Review*.

Court-Martial, a court usually convened for the purpose of trying offences against military or naval discipline, and also for administering martial law. Previous to 1640 ordinances were issued by the king for the trial of these offences, and justice was administered under the old court of chivalry of which the Earl Marshal was the president. The military laws adopted by the commanders during the Thirty Years' War, however, were not without their effect on Eng. military law, and we may safely say that Cs.-M. were instituted in the reign of Charles I. They did not receive parliamentary sanction, however, until the Mutiny Act of 1689 was passed, and from that date until 1879 Cs.-M. administered the discipline laid down in the Articles of War. In that year the Army Discipline and Regulation Act was passed, and two years later the Army Act (1881) superseded that. Cs.-M. until recently were divided into four different classes: (1) A regimental C.-M., (2) a district C.-M., (3) a general C.-M., (4) a field general C.-M. (1) The commanding officer of a regiment had power to convene and authority to confirm a regimental C.-M., but these Cs.-M. have been abolished. (2) A district C.-M. is convened by a general officer having

authority to do so; it must be composed of at least three officers, each of whom has served at least *two* years, and it can give punishment to the extent of two years' imprisonment.

(3) A general C.-M. is the only court which has authority to try an officer, or to pass a death sentence, or a sentence involving penal servitude. It must consist of nine officers, five of whom have at least the rank of captain in the United Kingdom, Gibraltar, Malta, or India. Elsewhere in the dominions it must consist of at least five officers. (4) A field general C.-M. is convened when it is held necessary by the officer in command of troops outside the United Kingdom, or by an officer on active service, and when it is impossible to convene an ordinary general C.-M. The court must consist of at least three officers, each of whom has at least *one* year's service. The ordinary procedure of an ordinary C.-M. must be maintained as far as possible, and the prisoner is allowed to conduct his own defence and to address the court himself. The experiences of the Great War gave an impetus to the humanitarian tendency in the infliction of punishment upon military offenders, and to this tendency may be traced the modification of the power of Cs.-M., particularly in the abolition soon after the war of the death sentence in certain cases. These cases are: leaving one's commanding officer in order to go in search of plunder; sleeping or being drunk when on sentry duty; breaking into a house in search of plunder; forcing or striking a soldier who is acting as a sentinel; and forcing a safeguard. Public opinion also strongly animadverted on certain forms of 'field punishment,' in view of which flogging and the tying of offenders to guns or vehicles have been abolished. Following the recommendations of the Committee, appointed after the war, improvements were effected in procedure and in the requirements as to the qualifications of officers constituting a court, and regimental Cs.-M. were abolished, a change justified by the marked diminution of crime in the British Army. (See also under ARMY.) Sentences of Cs.-M. during the Great War were not always put into execution and the services of offenders were retained in the field by the operation of the Army Suspension of Sentences Act, which, passed in 1915, is still operative.

The Royal Air Force has its own Code of law, which is largely based on Military Law, and, in consequence, its C.-M. procedure is analogous to that of the Army. In the U.S.A.

there are three forms of C.-M.: (1) General C.-M., consisting of not fewer than five officers and having power to award any authorised punishment, including death. The President of the U.S.A. confirms all sentences of this Court. (2) Special C.-M., comprising not fewer than three officers, with considerably less powers. (3) Summary C.-M., consisting of one officer, with powers in excess of those of a Commanding Officer, and appointed to deal with minor cases. The Army Act has laid down the punishment which may be inflicted for each particular offence. In the procedure adopted at Cs.-M. see ARMY.

Naval Courts - Martial. — These courts are held under the authority of the Naval Discipline Act, 1866, which was amended in 1884. From the time of the Stuarts down to the time of the third George, discipline in the navy was regulated only at the discretion of the commanders, under the authority of the Admiralty. In more cases than not, this meant that the law was badly administered, and depended too largely upon the whims and fancies of the commander. Under the Naval Discipline Act, however, the court must consist of from five to nine officers of certain fixed rank. The court also must be held on board one of H.M. ships of war, and there must be at least two such ships together at the time. The sentence, save in the case of the death penalty, does not need confirmation by the commander-in-chief of the station. The court also has the power of reducing the gravity of the charge, and sentencing the prisoner on the reduced charge. The Naval Discipline Act also lays down definitely the jurisdiction of the courts which have by that Act authority to deal with any offender who is for the time being directly or indirectly connected with the navy or naval authorities.

Courtney, William Leonard (1850-1928), an Eng. journalist and author, b. at Poona, India; educated at Somersetshire College, Bath, and at Oxford. He became headmaster of Somersetshire College (1873), fellow of New College, Oxford (1876), and was for many years treasurer of O.U.B.C. He came to London (1890), joining the *Daily Telegraph* staff. He edited *Murray's Magazine* (1894), and succeeded Harris as editor of the *Fortnightly Review*. Among his works are: *The Metaphysics of John Stuart Mill*, 1879; *Studies on Philosophy*, 1882; *Constructive Ethics*, 1886; *Studies New and Old*, 1888; *Studies at Leisure*, 1892; *The Idea of Tragedy*, 1900; *The Development of Maeterlinck*, 1904; *The Feminine Note in*

Fiction, 1904; *The Literary Man's Bible*, 1907; *Rosemary's Letter Book*, 1909. His drama, *Kil Marlowe*, was produced at St. James's Theatre in 1893. *Undine*, a dramatised version of De la Motte Fouqué's tale (1813), appeared in 1902.

Courtney of Penwith, Leonard Henry, 1st Baron (1832-1918), an Eng. statesman, b. at Penzance, July 6, 1832. A pronounced Liberal in politics, C. was Under-Secretary of State for the Home Department, 1880-81, for the Colonies, 1881-82. He succeeded Cavendish as Financial Secretary to the Treasury, resigning office in 1884. He was chairman of committees and Deputy Speaker 1886-92. He opposed his party on the Transvaal War question, and retired from the House of Commons in 1900. He was ennobled in 1906. He stood alone in the House of Lords as an opponent of the prosecution of the War against Germany. He was an early advocate of proportional representation. Among his works are: *The Working Constitution of the United Kingdom and its Outgrowths*, 1901. Died at Cheyne Walk, Chelsea, May 11, 1918.

Courtois, Jacques (1621-76), a Fr. painter, commonly called Le Bourguignon. He studied painting with his father, Jean C., and C. won his reputation as a battle painter. His scenes of the camp, the march, and the battle-field may be found in most of the principal galleries of Europe.

Courtrai (Flemish Kortrijk), a tn. in the prov. of W. Flanders, Belgium, 26 m. S. W. of Ghent, 16 m. from the French border. The town is built on both sides of the R. Lys, over which is a fine old bridge with Flemish towers. The town is very picturesque with its old walls, its castle, and famous belfry. The Gothic church was founded by Baldwin, Count of Flanders, in 1238, and the town hall dates from 1526. C. is a busy manufacturing town, and is celebrated for its table damask, fine linen, and lace. To the Romans it was known as *Cor-toriacum*, but gained its industrial importance in the Middle Ages. Here, in 1302, was fought a 'battle of the Spurs' (not to be confused with Henry VIII.'s battle at Guinegate, 1513), when the citizens of Ghent and Bruges won a glorious victory over the French army, calling the battle after the golden spurs they plucked off the vanquished dead. C. was occupied by the Germans on Aug. 24, 1914, and recovered by the Allies on Oct. 16th. 1918. Pop. 40,000.

Courts, Ecclesiastical, see ECCLESIASTICAL COURTS.

Couserans, or Conserans, Le, an

ancient dist. of the Pyrénées in France, situated near the frontier. It forms a part of the department of Ariège at the present time, but was at one time a dependency of the former province of Gascony, its capital being St. Lizier.

Cousin (Lat. *consobrinus*), a kinsman (like the Lat. *consanguineus*, a blood relation), especially applied to the child of one's uncle or aunt. If A and B are C's., A's child is a 'first C. once removed' to B. The children of brothers or sisters are 'Cs.-german' ('full' or 'first' Cs.). Children of Cs.-german are second Cs. to each other. In some parts of Cornwall and Somerset 'cousin' merely means friend or comrade (cf. Scottish 'friend,' meaning kinsman). European sovereigns used to call each other C. or 'coz' (see Shakespeare's *Henry V.*). This name is still used by sovereigns for their nobles.

Cousin, Jean (1501-89), a Fr. painter and sculptor, b. at Soucy, near Sens. Very little is known of his life. He began as a painter on glass. The windows in the Sainte Chapelle, Vincennes, are considered his best work. The windows of St. Gervais, Paris, representing the death of St. Lawrence, and others in the church of Sens, are among his finest work. His most celebrated picture in oils is the 'Last Judgment,' now in the Louvre. Oil paintings had previously been confined to portraits among his countrymen, and therefore C. is regarded as the 'founder of the Fr. school,' certainly in the historical department. C. was also a goldsmith, miniaturist, and wood engraver. In sculpture his principal work is the monument of Admiral Chabot, in the church of the Celestines. He also wrote books on geometry and perspective. His chief publications are *Livre de Perspective*, 1560, and *Livre de Portraiture*, 1571. Consult Firmin-Didot, *Étude sur Jean Cousin*, 1872.

Cousin, Victor (1792-1867), a French philosopher and historian, educated at L'Ecole Normale, Paris. By 1814 he was Royer-Collard's assistant lecturer in philosophy at the Sorbonne. C. was at first a follower of the Scottish psychological school (Reid, Dugald Stewart); after his visit to Germany, 1817-19, he showed the influence of Kant, Hegel, Fichte, and others. In 1820, after the assassination of the Duc de Berrie, C. was for a time dismissed from his office because of his Liberalism. During his second visit to Germany, 1824-25, he was arrested at Dresden as suspected of revolutionary tendencies, and detained for some months at Berlin. He returned to

France and regained his position, in 1828, under Martignac's ministry. By this time he had published his editions of Proclus and Descartes (1820-26), and the first volumes of his translation of Plato. C. became director of L'École Normale, in 1830. He was Minister of Public Instruction in the Cabinet of Thiers in 1840, and a member of L'Académie des Sciences Morales et Politiques. After the Revolution of 1848, C. aided the government of Cavaignac, publishing an anti-socialistic pamphlet, *Justice et Charité*. He retired from public life after the *coup d'état* of 1851. He was founder of the 'eclectic' system, so named by himself. Among his chief works are: *Fragments philosophiques*, 1826-28; *Cours d'histoire de la philosophie*, 1827-40; *De la métaphysique d'Aristote*, 1835; *Œuvres inédites d'Abailard*, 1836; *Cours de philosophie professé . . . en 1818 . . .*, 1836; *Cours d'histoire de la philosophie moderne*, 1841; *Cours d'histoire de la philosophie morale au XVIII^e siècle*, 1840-41; *Leçons sur la philosophie de Kant*, 1842; *Études sur les Femmes et la Société du XVII^e siècle*, 1853-56 (Mme. de Longueville, Mme. de Sablé, Mmes. de Chevreuse et de Hantefort); *Des Pensées de Pascal*, 1842; *Jacqueline Pascal*, 1844; *Du Vrai, du Beau, et du Bien*, 1858. See Marbach, *Schelling, Hegel, und Cousin*; Fuchs, *Die philosophie von V. Cousin*, 1847; Sainte-Beuve, *Causeries du lundi*; *Nouvelle Biographie Générale*; Janet, *V. Cousin et son Œuvre*, 1885; Secrétan, *La philosophie de V. Cousin*, 1868; Simon, *V. Cousin*, 1887; Barthélemy St. Hilaire, *V. Cousin, sa vie et sa correspondance*, 1895.

Cousin-Montauban, Charles Guillaume Marie Apollinaire Antoine, Comte de Palikao (1796-1878), a Fr. general. He commanded the Anglo-French forces in the expedition against China, winning the victory of Palikao in 1860. For this the Emperor Napoleon granted him his title after the fall of Peking. He was Premier and War Minister from August to September 1870, at the beginning of the German War. After the disastrous battle of Sedan he fled from the country, refusing the dictatorship offered him. C.-M. wrote *Un Ministère de vingt-quatre jours*, 1871, describing his experiences.

Cousins, Samuel (1801-87), an Eng. mezzotint engraver, apprenticed to S. W. Reynolds. He produced his 'Lady Acland and Children' and 'Master Lambton' after Lawrence in 1826. These engravings won him a reputation, and were followed by numerous plates after Lawrence, Landseer, Reynolds, Millais, and

others. 'Marie Antoinette in the Temple' is another famous work. C. became A.R.A. in 1835, and first academicien engraver in 1855, retiring in 1880. He left £15,000 to found academy annuities for poor artists. See Pycroft's *Memoir*, 1887.

Couston, the name of three Fr. sculptors:—

Nicolas Couston (1658-1733), a Fr. sculptor, b. at Lyons. His chief works are: a statue in marble of Louis XV. (in the Louvre), 'Daphne pursued by Apollo' (in the garden of the Tuileries), and the 'Descent from the Cross,' commonly known as 'Le Vœu de Louis XIII.' (in the choir of Notre Dame).

Guillaume Couston (1678-1746), the brother of Nicolas, and with him a pupil of his uncle, Coysevox (q.v.). He entered the Academy of Paris in 1704 with 'Hercule sur le Bûcher.' He executed the bas-reliefs of the chief entrance to the Hôtel des Invalides, and the statues of the façade of the Château d'Eau, opposite the Palais Royal. Other works of his are: a statue of St. Augustine, 'Faith and Religion,' and 'Jesus Christ in the Temple.'

Guillaume Couston (1716-77), the son of the above, born in Paris. He won the Prix de Rome at the age of nineteen. He designed the sculptures formerly in front of the church of St. Geneviève, and executed in bronze 'The Visitation.'

Coutances, the cap. of an arron. in the dept. of La Manche, France, 5 m. from the English Channel. It stands on the slope of a hill, on the summit of which rises a mediæval cathedral thirteenth century), which is one of the finest examples in Normandy of the early Pointed style. The church of St. Peter's built in the Gothic style, is also of great interest. The town is built on the site of ancient Constantia of the Romans. It has manufactures of silks, muslins, lace, etc. Pop. 6400.

Couthon, Georges (c. 1755-94), a Fr. politician and revolutionary leader, becoming president of the Clermont tribunal in 1789. He disapproved of the September massacres, but voted for the death of Louis XVI. Gradually he became more and more Radical, and sided against the Girondists. His entrance into Lyons was, however, marked by comparative moderation. He helped Robespierre to destroy the partisans of Hébert and Danton, but shared his leader's fate in 1794. See Mège, *Correspondance de Couthon*, 1872; Aulard, *Les orateurs de la législative et de la convention*, 1885-86; Morse-Stephens, *The French Revolution*, 1891.

Coutras, a tn. in the dept. of Gironde, France, on the Dronne, 26 m. N.E. of Bordeaux. It is the site of the famous victory of Henry of Navarre over the Catholic League, headed by Henry III., 1587. The trade is chiefly in wine and flour. Pop. 5080.

Coutts, Thomas (1735-1822), a famous London banker, of Scottish birth, founder of the bank-house, Coutts & Co., of which he became sole manager on the death of his brother, James, in 1778. He became banker to George III., and left a



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fortune of £900,000. C. married twice, his second wife being the actress, Miss Mellon (1815). His grandchild was Lady Angela Burdett-C. (d. 1906). See Richardson, *Coutts & Co.*, 1900; Chambers, *Eminent Scotsmen*, 1875.

Couvade (Fr. *couver*, to hatch), the term applied by anthropologists for the curious custom prevalent among several races in different parts of the world, requiring that the father at, and sometimes before, the birth of a child shall retire to bed and fast from all animal food. The mother continues her work in the fields until a few hours before the birth, and returns to it as soon after as she can stand, while the father affects to suffer all the physical pains and is waited on hand and foot by the women. The custom existed in ancient times among the Corsicans (recorded by Diodorus) and among the Spanish Basques (recorded by Strabo); the statement that the custom still exists among the latter has been proved to be incorrect. It is still found in Guiana, in Tibet, and in some parts of China and India. No

certain explanation can be found, Professor Tylor adopts the view that it is the transition between the older matriarchal system, by which children reckoned their descent from the mother alone, and the later patriarchal system, of tribe-organisation. See E. B. Tylor, *Early History of Mankind*, 1865; A. Girard-Teulon, *Les Origines de la Famille*, 1884; Lord Avebury, *Origin of Civilisation*, 1900.

Cove, see QUEENSTOWN.

Covenant (through Old Fr. from Lat. *convenire*), a mutual agreement made by two persons or groups of persons, or by a person or persons with their god or gods. The term (Heb. *berith*) is much used in the Old Testament for various kinds of agreements. They were looked upon as sacred and binding, the children of Israel being particularly forbidden to make any C. with the Canaanites. More important, however, than these contracts are the Cs. made between Yahweh (Jehovah) and his chosen people. All these Cs. are considered to be summed up in the C. made with Moses on Sinai, spoken of in Isaiah iv. 3 as 'the everlasting C.' It was, however, perpetually renewed throughout the Old Testament period, particularly with chosen individuals, such as Adam, Noah, and Abraham before Moses, and by the mouth of the prophets in later times. This C. is expressly conditional. God is the active agent promising favour and prosperity to the Israelites, but the Israelites have their part to perform. They must be submissive and obedient if the C. is to be valid. Their failure to adhere to their side of the contract finally made the old C. to be annulled and a new one, the New Testament C. in Jesus Christ, to be made. This rests on a basis of faith, and is fully dealt with by St. Paul and the writer of the Epistle to the Hebrews as the fulfilment of the original C. made with Abraham. See Shultz's *Old Testament Theology*, vol. ii., 1892.

Covenant, in law, is a written agreement under seal (i.e. in a deed) between two or more persons whereby some act is agreed to be done or not to be done; or upon the happening of some event, some liability is agreed to be borne by some party thereto. Cs. may be express, e.g. not to use a house for any other purpose than as a dwelling-house; or implied, e.g. in a conveyance on sale the words 'as beneficial owner' imply Cs. that the vendor of the land has a right to convey, that the land is free from encumbrances that the purchaser shall be left in quiet enjoyment of the land, and that the vendor will make any further deed for the conveyance of the land that may prove necessary.

Cs. are said to 'run with the land' when they bind any one to whom the land in respect of which they have been entered into is assigned. A breach of C. gives rise to an action of damages, and in some cases the covenantee may sue for an injunction to restrain a threatened or intended breach.

Covenant of the League of Nations. A short statement of essentials to the formation of the League of Nations, incorporated in the Treaty of Versailles, 1919. It contains twenty-six clauses, and may be regarded as the constitution of the League. Its primary purpose is the prevention of war, and of necessity it envisages the League as an organic body capable of seeing to its own development and does not, therefore, do more than provide in general language such tentative machinery for securing international peace as at the date of the Treaty was likely to command mutual agreement among the signatories of the Treaty. There is no outlawry of war as such in the C., and the obligations laid on the signatories in the matter of the prevention of war are definitely limited in scope. These obligations are imposed by Articles 12, 13, 15, and 16. Under Article 12, the Members of the League agree to submit disputes either to arbitration or to inquiry by the League Council, and, in any case, not to resort to war until three months after the award by the arbitrators or the report by the Council. This article contains no absolute prohibition of war; it merely makes provision for an interim period during which other means than resort to war may be employed towards finding a settlement. In the event of one disputant being dissatisfied with the award of the arbitrators and declaring war on the other disputant, who may have faithfully observed the award, a purely negative obligation is imposed by Article 13 on all Members of the League other than the recalcitrant disputant, viz. that they will not resort to war against the complying disputant. In the case of a dispute submitted in the first instance, not to arbitration, but to inquiry by the Council, it is provided by Article 15 that the Members will not go to war with any party to the dispute which complies with the recommendations of the Council's report. But if the report is not unanimous, no obligation whatever is imposed on League Members, who 'reserve to themselves the right to take such action as they shall consider necessary for the maintenance of right and justice.' Again, if a disputant fails

to wait the stipulated time until the machinery set up by the League for seeking a solution other than war has been put into operation, then, under Article 16, the recalcitrant Member is deemed to have committed an act of war against all other League Members, and two sanctions, the one economic, the other military, naval, or aerial, may come into operation. In many cases, the mere threat of an economic blockade would be effective, as was shown by the sudden cessation of the invasion of Albania by Yugo-Slavia in 1921. But if this threat be insufficient, it seems that the Covenant provides no clue to the questions as to who is to say when the military sanction shall operate, or who is to decide its nature and direct its application against the common enemy. The C. imposes no compulsory contribution of military, naval, or air forces, and the duty of the Council is solely one of recommendation, for there is no definitely organised force at the disposal of the League Council. These defects of Article 16 of the C. were discussed at the 1921 Assembly of the League, with the result that its text was altered by resolution so as to speed up the operation of sanctions in a crisis. This resolution imposes on the Council the duty 'to give an opinion whether or no a breach of the C. had taken place,' but the Assembly made it clear that the Council could do no more than *invite* Members to apply the economic blockade, and then later on *recommend* certain particular contributions towards the forces it might be proposed to employ against the recalcitrant state. It is to be noted, however, that this amendment has not yet (1931) been ratified by the requisite number of Members, and cannot therefore be included in the official text of the C..

It does not follow from the restricted character of these obligations that the principal Articles of the C. are valueless. On the contrary, they have done much towards the prevention of war, for they at least supply a *locus penitentiae*. It is true that the League failed to check Mussolini in the matter of the Corfu incident of 1923; but this does not minimise the fact that even the limited obligations of the C. have been effectual in averting more than one war since the inception of the League, e.g. in the case of the Greco-Bulgarian frontier dispute of 1925.

Another notable Article (8) of the C., reflects the recognition by Members of the necessity for reducing national armaments 'to the lowest

point consistent with national safety'; and proceeds to entrust the Council with the duty of making plans for the reduction of armaments and the supervision of munitions factories. That, however, is as far as the framers of the C. went in the sphere of disarmament (see further under ARMAMENTS, LIMITATION OF). Brief reference may also be made to Article 10, which states that the Members undertake to 'respect and preserve, as against external aggression, the territorial integrity and existing political independence of all Members'; and that 'in case of any aggression or threat of aggression,' the Council 'shall advise upon the means by which the obligation shall be fulfilled.' This Article, however, is so ambiguous, when read in conjunction with the rest of the C., that it is almost meaningless; and indeed it was against this particular Article that much of the opposition to the C. in the U.S.A. was directed. The two cardinal objections by the U.S.A. were that the Article might involve the U.S.A. continually in purely European disputes over frontier adjustments, and that its natural interpretation was to perpetuate for all time the territorial *status quo*. Finally, mention may be made of Article 14, which contains provision for instituting a Permanent Court of International Justice, but the Court was not established until 1921 (see INTERNATIONAL COURT OF JUSTICE, COURT OF; OPTIONAL CLAUSE). Consult Fred Alexander, *From Paris to Locarno and After* (Dent), 1928.

Covenanters, a name given to all subscribers to the various undertakings entered into by members of the Reformed Church in Scotland, from 1557 onward, for the defence of their faith; is especially associated with the signatories of the 'Solemn League and Covenant' (see also COVENANTS, THE) 1638-43. The Scottish Presbyterians co-operated with the Eng. Puritans in putting down episcopacy, and were in their turn crushed by Cromwell and the Independents. Charles II., needing Scottish support, signed the Covenant in 1650, and again 1651, but after the Restoration denounced it as unlawful (1662). The nobles mostly yielded, but thousands of the Scottish people stood firmly by their principles and attempted resistance. The battle of Rullion Green (1666) dispersed the insurgent army, and fearful persecutions followed, lasting for years. In 1679 the C. rose again, and won a small victory at Drumclog, but were completely crushed three weeks later at Bothwell Bridge. The cruelties of Dalzell, Claverhouse, and Lauderdale

are notorious in Scottish history, and the martyrology of the cause is told in many a legend. The struggle was at last ended by the revolution of 1688. Scott's *Old Mortality* gives a vivid account of the insurrection of 1679.

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point consistent with national safety'; and proceeds to entrust the Council with the duty of making plans for the reduction of armaments and the supervision of munitions factories. That, however, is as far as the framers of the C. went in the sphere of disarmament (see further under ARMAMENTS, LIMITATION OF). Brief reference may also be made to Article 10, which states that the Members undertake to 'respect and preserve, as against external aggression, the territorial integrity and existing political independence of all Members'; and that 'in case of any aggression or threat of aggression,' the Council 'shall advise upon the means by which the obligation shall be fulfilled.' This Article, however, is so ambiguous, when read in conjunction with the rest of the C., that it is almost meaningless; and indeed it was against this particular Article that much of the opposition to the C. in the U.S.A. was directed. The two cardinal objections by the U.S.A. were that the Article might involve the U.S.A. continually in purely European disputes over frontier adjustments, and that its natural interpretation was to perpetuate for all time the territorial *status quo*. Finally, mention may be made of Article 14, which contains provision for instituting a Permanent Court of International Justice, but the Court was not established until 1921 (see INTERNATIONAL COURT OF JUSTICE, COURT OF; OPTIONAL CLAUSE). Consult Fred Alexander, *From Paris to Locarno and After* (Dent), 1928.

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Coventry, a parl. and co. bor. in Warwickshire, England, on the river Sherbourne, 9½ m. from Warwick. It is one of the oldest tns. in England, but its recent improvements have, of necessity, deprived it of much of its quaint, old-world appearance. Earl Leofric and his wife, Lady Godiva (*q.v.*), founded in 1041 a Benedictine priory, which, according to popular etymology, gave its name to the town. The old town walls, which were 9 ft. thick, with twelve gates and thirty-two towers, were begun in 1355, but were demolished by Charles II. because the town had defied his father's army. St. Mary's Guildhall, which still stands, was built in 1450. The roof is of carved oak, there is a beautiful stained-glass window, and the walls are decked with curiously wrought tapestries of exquisite colours, which were made about 1450. In the fifteenth century members of various guilds played mysteries before the kings of England. The pageant, founded on the old tradition of Lady Godiva and Peeping Tom of C., was first introduced in the seventeenth century, and the gorgeous beauty of its processions has rivalled all others. The anct. cathedral was destroyed by Henry VIII. The present cathedral, St. Michael's Church (built 1373-95), is a beautiful edifice in red sandstone, built in the Perpendicular style. Two other anct. churches are St. John's and Trinity Church. Christ Church is a fine modern building. Previous to the seventeenth century, C. was celebrated for its broad-cloth, woollens, caps, and bonnets, and for a kind of blue thread called 'Coventry true blue.' During the eighteenth century there were flourishing manufactures of camlets, shalloons, calimancoes, and tammies. Now C. boasts of being the first place in which bicycles and tricycles were made. Besides manufacturing these machines and motor cars, C. also has considerable trade in watches, weaving, silk-dyeing, and artificial silk. There are extensive electrical and other engineering works, iron foundries, etc. The modern buildings include a free public library, school of art, public baths, crematory, dispensary, and hospital, etc. It is favourably situated as a commercial centre, and has extensive canal communication. The Martyrs' Memorial erected in 1910 records the names of eleven Protestant martyrs. In the War Memorial in War Memorial Park is a chamber of silence which contains a book inscribed with the names of all those who served during

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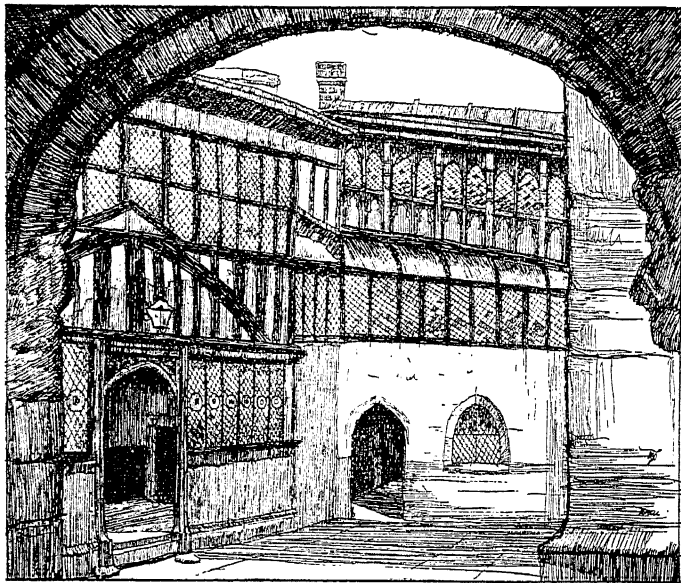
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the Great War. The Coventry and Warwickshire Hospital has been greatly extended of late years. C. was made a separate diocese in 1918. The town returns one member to Parliament. Pop. 168,000.

Coventry, a tn. in Kent co., Rhode Is., U.S.A., 12 m. S.W. of Providence; has cotton and woollen manufactures. Pop. 6430.

Coventry, Sir John (d. 1682), a grandson of Lord-Keeper Thomas C.

common with a method of speculating in shares by which it is possible to limit one's loss to a specified amount, viz. the amount deposited to cover the sum the speculator is willing to risk in the deal. The amount deposited is called the C. If by settling day the difference in the price of the shares is such that the C. is exhausted, or has, as it is termed, 'run off,' a further sum must be deposited with the broker, if the speculator



COVENTRY

The courtyard of St. Mary's Guildhall

He was M.P. for Evesham in the Long Parliament (1640), and was made a Knight of the Bath at the coronation of Charles II. In 1667 he was elected M.P. for Weymouth, and during a debate on playhouses in 1670, asked whether the king's pleasure lay among the men or the women who acted, popularly supposed to be an allusion to Nell Gwynne. His mutilation by Sir T. Sandys and a band of ruffians in consequence of this remark led to the passing of the Coventry Act which made such mutilation a capital offence. See *Pepys' Diary*.

Cover : (1) In finance, a term used in

desires to carry over. If not the account is closed. Where a transaction of this nature is entered into with a broker it is no doubt allowable by the rules of the Stock Exchange, and would not, without other evidence, be regarded in a court of law as a mere speculation in differences (*q.v.*). If the contract were made directly with a jobber it would be contrary to the gaming Acts. Such transactions are common with 'outside' brokers, who are really jobbers, and whose businesses go by the colloquial name of 'bucket shops.' (2) A term used as a synonym for the security given for a loan, *e.g.* debent-

tures, stock bonds, or title deeds, deposited with a banker as security for an overdraft.

Coverdale, Miles (1488-1568), Bishop of Exeter, translator of the Bible. He was a native of Yorkshire and was educated in the house of the Augustine friars in Cambridge. He was ordained at Norwich in 1514, and the same year became an Augustine monk. But by 1526 he had entirely changed his religious opinions; he left his convent and preached against confession and likened the worship of images in churches to idolatry. In 1532 he travelled on the Continent, and possibly assisted Tyndale in his translation of the Bible. In 1535 his own translation 'out of Douche and

of Exeter. In 1564 he accepted the rectory of St. Magnus, London, but resigned two years later. C. wrote many tracts in order to promote the doctrines of the Reformation, and translated works of his friends on the Continent. A complete edition of his works and letters was issued by the Parker Society in 1844-46. Consult *The Memorials of Miles Coverdale*, 1838; F. Fry, *The Bible by Coverdale*, 1867; and the article in the *Dict. of Nat. Biog.*

Covered Way, a term used to describe a passage constructed in fortification outside the ditch of a fortress. It is usually about eleven yards wide, and being between the counterscarp and the glacis, and protected by the latter as well as by traverses, is used as a safe position for sentries and for the movements of small bodies of men towards assembling places.

Coverture, in law, is a term used to indicate the state of a married woman, who is considered as under *cover* or the power of her husband, and therefore called a *feme-covert*. The condition of C. follows from the legal maxim that by marriage husband and wife become one person, and that the legal existence of the woman is incorporated into that of her husband. Since the passing of the Married Women's Property Act in 1882 the maxim above alluded to has become bereft of practically all its force, and a married woman can make contracts and deal with her property as she chooses, subject, in the case of settled property, to a 'restraint on anticipation' clause. The common law (*q.v.*) gave virtually all a wife's property to her husband. Equity in various ways removed that property not only from the husband's legal but also persuasive influence. Common law favoured the complete economic dependence of married women. Equity, with all its inherent deficiencies, did perhaps pave the way to a semblance of economic independence; but the doctrines of equity were designed as much to protect a married woman against herself as against her husband's proprietary claims; and even now a married woman's liability is not personal but co-extensive only with her separate property, nor can she even be made a bankrupt except where she trades apart from her husband.

Covilhão, a tn. of Beira, Portugal, on slopes of Serra da Estrella, 47 m. N.E. of Coimbra. It has manufactures of woollen goods, and near it are valuable hot springs. Pop. 14,050.

Covington: (1) a city of Kentucky, U.S.A., on the Ohio R. opposite



MILES COVERDALE

Latyn' appeared, with a dedication to Henry VIII.—the first complete Bible printed in Eng. The Psalms of C.'s Bible are those used in the Book of Common Prayer. In 1533 C. superintended the printing of a translation in Paris. Many of the copies were seized by the Inquisition, but a few reached England, which enabled the noted printers, Grafton and Whitchurch, to bring out the 'Great Bible' in 1539. C. became bishop of Exeter in 1551. During Mary's reign he sought refuge on the Continent, where he took part in the production of the 'Geneva translation' (1557 and 1560). C. returned from exile in 1559, but, owing to the principles he had imbibed from continental reformers, he was not restored to the see

Cincinnati, with a suspension bridge 2252 ft. long, a municipal air-port, manufactures of X-ray apparatus, tobacco, textiles, etc. Pop. 65,252. (2) Co. seat of Allegheny, co. Virginia, with a pulp and paper mill, etc., and sulphur springs. Pop. 6538.

Cow, *see* CATTLE, DAIRY-FARMING.

Cowans, General Sir John Steven (1862-1921), British general. Quarter-Master General of the Forces, 1912-19; Member of the Army Council, 1914. Previously to this he had been Director of Staff Duties and Training and Director-General of the Territorial Force. By common consent his administration of the Quarter-Master-General's department was in the highest degree successful. The system he devised for the supply of the small British Expeditionary Force of 150,000 was so well evolved, that it was readily adaptable to the requirements of the huge armies that eventually left for the various theatres of war abroad. The concentration of the allied efforts in France no doubt assisted him in his work, but judged by every test his efforts were brilliant in the extreme.

Cowall, or Cowal, a mountainous peninsular dist. of Argyllshire, Scotland, between Loch Long and the Firth of Clyde on the E. and Loch Fyne on the W. It is about 40 m. long by 15 m. broad, and contains Lochs Goll and Eck, and the town of Dunoon.

Coward, Noel (b. 1899), Eng. playwright and actor. Began stage career at the age of eleven in *The Goldfish*. Has been styled the *enfant gâté* of the Eng. drama, from the audacity of his plays and their acceptance by the critic and the playgoer alike. Was successful in his own social skit, *The Vortex*, and in the production of *Fallen Angels*, a satire on 'modern' wives. Other plays include *Easy Virtue* and *Hay Fever*. Recently launched out as a composer of light opera, notably in the operetta *Bitter Sweet*. His plays have been widely played in the U.S.A.

Cowasjee, Sir Jehanghir Ready-money (1812-78), called 'the Peabody of Bombay,' a Parsee merchant and philanthropist. At the age of fifteen he became warehouse clerk to the firm of Duncan, Gibb & Co., of Bombay. In 1846 he began trading on his own account and soon amassed a large fortune, of which he gave away huge sums to philanthropic institutions in Bombay. He was made C.S.I. in 1871 and created a Knight Bachelor of the United Kingdom in 1872.

Cowbridge, a bor., Glamorganshire, Wales, 12 m. W. of Cardiff. Portions

of the old Norman fortifications and wall still remain. The industry is entirely agricultural, and the town has good markets and cattle fairs. Pop. 1159.

Cowdenbeath, a tn., Fifeshire, Scotland, 5 m. N.E. of Dunfermline; has coal-mines and blast-furnaces. Pop. 14,200.

Cowdray, Weetman Dickinson Pearson, 1st Viscount (1856-1927), Eng. engineer and Air Minister. Formerly Sir Weetman Pearson. Head of a firm of engineers and contractors. Constructed the Dover harbour works, the Blackwall tunnel and the tunnel under the East River, New York. Was also engaged on the Tehuantepec Railway, Mexico. Appointed Chairman of the Air Board in Jan. 1917 in succession to Lord Sydenham. His great experience was invaluable in the Board's work of constructing and delivering aeroplanes. Resigned in 1917. Lord Rector of Aberdeen University, 1918.

Cowell, Edward Byles (1826-1903), an Eng. Sanskrit scholar, who, in 1856, was appointed Professor of History at Calcutta, and in 1858 principal of the Gov. Sanskrit College. In 1867 was Professor of Sanskrit at Cambridge. Among his publications are: *The Aphorisms of Sândilya*, 1878; *Vikramorvâsi; an Indian Drama*, 1881; *The Sarva-Darsana-Samgraha*, 1878; *The Kusumâñjali*, 1864; *Buddha-Karita*, 1893; *The Harsa-Charita of Bâna*, 1897; *The Jataka*, 1895; besides the completion of several other works, e.g. Wilson's edition of the *Rigveda*, and several in collaboration with other scholars.

Cowen, Frederick Hymen (b. 1852), an Eng. musical conductor and composer, b. at Kingston, Jamaica. He studied under Benedict and Goss, and at Leipzig and Berlin, and his works include oratorios, operas, symphonies, cantatas, overtures, and the settings of over two hundred songs. He was appointed conductor to the Philharmonic Society in 1888, and has held, and still holds, many important appointments as conductor. Among his chief works are: *Rose Maiden* (cantata), 1870; *Ruth* (oratorio), 1887; *Thorgrim* (opera), 1890; *Harold* (opera), 1895; *Ode to the Passions*, 1898; *Coronation Ode*, 1902; *John Gilpin* (cantata), 1904; *Suite of English Dances*, 1905; *The Veil* 1910; *My Art and My Friends*, 1913; *Language of Flowers* (2nd suite) 1914; ballet, *Cupid's Conspiracy*, 1916; *Monica's Blue Boy*, 1917; *Twelve Songs of my Little Ones*, from *Punch*, 1927.

Cowes, a seaport and watering-place in Isle of Wight, England, on the N. coast at the estuary of the R.

Medina, 10½ m. S.E. of Southampton and 8½ m. S.W. of Portsmouth. It stands in a picturesque situation on a hillside. At Egypt Point, the angle formed by the river and the sea, is a battery. C. is the headquarters of the Royal Yacht Club and the seat of its annual regatta. There are engineering, ropery and sail-making works. Dr. Arnold, the headmaster of Rugby, was b. here in 1795. Pop. 9995. E. Cowes, a distinct municipality, is on the opposite side of the Medina; it also has boat building yards. Pop. 4642. Osborne House was built in 1845 by Queen Victoria. E. Cowes Castle and Norris Castle are also noteworthy.

Cowie, a vil., Kincardineshire, Scotland; has coal mines and a large fishing industry. Pop. 2500.

Cowlairs, a Glasgow suburb; has large railway works.

Cowles, Henry Chandler, American botanist; b. 1869, at Kensington, Conn.; son of Henry Martyn C. Educated at Oberlin Coll. (A.B., 1893) and Chicago Univ. Prof. of Natural Sciences at Gates Coll., Neb., 1894-5. At Chicago Univ. became Ph.D. in 1898; instructor in botany, 1902-7; assistant professor, 1907-11; associate professor, 1911-15; professor since. President Botanical Society of America, 1922. Works: *Vegetation of Sand Dunes of Lake Michigan*, 1899; *Plant Societies of Chicago*, 1901; *Text-book of Plant Ecology*, 1911; *Plant Societies of Chicago and Vicinity*, 1913.

Cowley, Abraham (1618-67), an Eng. poet and essayist, b. in London; educated at Westminster and Trinity College, Cambridge. While still at school he published a volume of poems, *Poetic Blossoms*, and wrote *Love's Riddle*, a pastoral comedy, and in 1638 issued *Naufragium Jocularé*. He was ejected from the university as a royalist by the parliamentarians in 1643, and removed to St. John's College, Oxford, where he published a satire, *Puritan and Papist*. In 1646, at the surrender of Oxford, he obtained a confidential appointment in the royal household, going to Paris with the queen and dealing with the cipher correspondence between her and the king. He remained abroad for about ten years, being secretary to Lord Jermyn (the Earl of St. Albans), and travelling to Jersey, Scotland, Flanders, Holland, etc., on royalist missions. In 1647 he published *The Mistress*, a series of poems in the most exaggerated style of the 'metaphysical school,' and on returning to England in 1656 issued *Miscellanies*, *Pindaric Odes*, and *Davidis*, an epic which had been largely composed at Cambridge. In

1657 he took the degree of doctor of physics at Oxford. After the death of Cromwell he returned to France as secretary to the royal family, and at the Restoration, being apparently disappointed at not receiving a greater reward for his loyalty than a lease of some of the queen's lands, retired to the country, living first at Barn Elms and then at Chertsey. He is buried in Westminster Abbey. His other works include six *Books of Plants*, 1662: a comedy, *The Cutter of Coleman Street*; and in prose, *A Proposition for the Advancement of Experimental Philosophy*, *A Discourse on the Government of Cromwell*, and some delightfully clear and pleasant essays. The beauties of his poems are spoilt by false taste and affected wit.

Cowley, Mrs. Hannah (1743-1809), Eng. dramatic writer, b. at Tiverton, her maiden name being Parkhouse. In 1768 she married Captain C. of the E. India Company, who d. in 1797. Her two most successful comedies were *The Runaway* (1776) and *The Belle's Stratagem*, and she also produced several other popular plays and some poems, including *The Maid of Arragon*, *The Scottish Village*, and *The Siege of Acre*. Her collected works, in 3 vols. 8vo., with memoir, appeared in 1813.

Cowley, Henry Richard Charles Wellesley, Earl (1808-84), an Eng. diplomatist. From 1852-67 he was ambassador at Paris, and exercised great influence in the relations between France and England, helping Clarendon to promote the Declaration of Paris, 1856, and Cobden to carry through his commercial treaty between France and England.

Cow-parsley, or *Chærophyllum temulum*, a wild umbelliferous plant often called chervil.

Cowpen, a part of Blyth urb. dist., Northumberland, with coal-mines.

Cowpens, a tn., Spartanburg co., S. Carolina, U.S.A., 2 m. S. of the N. Carolina boundary. It is famous for the battle, during the War of Independence, in which the American General Morgan defeated the British under Tarleton (1781). Pop. 1115.

Cowper, Edward (1790-1852), an Eng. engineer and inventor who in 1827, with his brother-in-law, Applegarth, invented the 'four-cylinder machine,' which was in general use for the printing of newspapers for many years.

Cowper, William, first Earl (c. 1665-1723), an Eng. statesman, son of Sir William C., M.P. In 1707 he became the first Lord Chancellor of Great Britain. He presided at the trial of Sacheverell in 1710, but resigned his office on the fall of the Whig ministry

in the same year. George I. re-appointed him Lord Chancellor, and as such he presided at the trial of the rebels of 1715. See Campbell, *Lives of the Chancellors*.

Cowper, William (1686-1709), an Eng. surgeon and anatomist, b. at Petersfield, in Sussex. He was admitted a barber-surgeon in 1682, and published *Myotomia Reformata*, 1694, a treatise on the muscles; and *The Anatomy of the Human Body*, 1698. His most valuable discovery in anatomy was 'Cowper's glands' (q.v.).

Cowper, William (1731-1800), an Eng. poet, b. at the rectory of Great Berkhamstead, Hertfordshire, of which village his father, John C., was the rector. His mother died when he was very young, and he was sent at the age of ten to Westminster



WILLIAM COWPER

School, having been removed from his previous school on account of the cruel treatment he had sustained from another boy. At Westminster his impressions were also somewhat painful, and from his youthful experiences he developed a hatred of public schools which he retained all his life. He had here Warren Hastings and the satirist Churchill as fellow-pupils. Shortly after leaving school, C. was articled to an attorney named Chapman, but he never showed any intention of practising, though he was called to the Bar in 1754. Though he almost entirely neglected his professional work, his time was not being wasted. He was reading and writing, and, with his brother, translated part of Voltaire's *Henriade*. He also belonged

to the 'Nonsense Club,' and fell in love with his cousin Theodora, daughter of Ashley C. The feeling was reciprocated, but the poet never had the energy to overcome his uncle's objections to the match. Meanwhile, he was expecting the influence of his family to secure him some useful Gov. post where the position was a sinecure, and this occurred in 1763. His cousin, Major C., offered him the post of Clerk to the Journals of the House of Lords, and he accepted it in preference to a more important post which was also vacant. Before he could take up his position, however, he had to undergo a so-called examination as to his fitness, which really amounted to no more than an appearance before the Bar of the house. C., however, who had already been somewhat given to fits of depression, grew so nervous at the prospect of this appearance that he finally attempted to commit suicide. Fortunately his courage failed him. His mind now gave way, and he was visited with terrible religious despair, describing himself as 'damned below Judas.' In this condition he was removed (Dec. 1763) to a private asylum at St. Albans, where he gradually recovered his equilibrium. In 1765 he wandered to Huntingdon, where he became acquainted with the Unwins, at whose house he soon came to reside. They were an amiable and religious family, and after the death of Mr. Unwin, C. continued to reside with his widow. In 1767 he removed with her to Olney, where he came under the influence of John Newton, curate of the village. Under this stimulus the poet gave himself up entirely to piety and good works, though too energetically for his health. It is from this period, at the suggestion of Mrs. Unwin, that the real commencement of C.'s poetic life must be dated. In 1773 his failing health again gave way, and a burst of madness ensued, which clouded his brain for three years. In 1779, three years after his recovery, appeared the *Olney Hymns*, written by him in conjunction with Newton. His next volume, consisting of secular verse, appeared in 1782, and contained *Table Talk*, *The Progress of Error*, *Truth*, *Expostulation*, etc. Much of this was the outcome of a new friendship which he had just formed. In 1781 he had begun an acquaintance with Lady Austen, a widow who had lately fixed her residence at Olney. She it was who told C. the tale of John Gilpin, upon which his popular fame so largely rests. Lady Austen then suggested that he should write blank verse, and carelessly pointed to 'a sofa' as a

theme. This suggestion was the inspiration of *The Task*, which appeared in six books in 1785. But the year before had seen the end of this fertile friendship, perhaps because of Mrs. Unwin's jealousy of Lady Austen's influence. In 1786, Lady Hesketh, sister of Theodora C., came to visit them at Olney, and persuaded them to move to Weston Underwood in 1787. In 1787 came another six months' insanity, during which the poet again attempted suicide. In 1791 appeared a translation of Homer into blank verse which he had started in 1784, and a projected edition of Milton brought him into touch with the famous Hayley. In 1794 came a final attack of insanity, from which he never entirely recovered. His cousin John Johnson took him to Norfolk with Mrs. Unwin, who died at E. Dereham. The poet lingered on for four more years, dying on April 25, 1800. He is buried near Mrs. Unwin in E. Dereham church. C. may justly be described as 'the herald of the Romantic movement.' In him were gathered up and concentrated all the gleams which had shone disconnectedly in Thomson, Gray, Lady Winchelsea, and the novelists. Though not one of the greatest poets of the country, his work is important both intrinsically and historically. He possessed equal merit as a letter-writer. See *Lives* by Hayley (4th ed. 1812, 4 vols.), Wright (1892), and G. Smith (*Mén of Letters*, 1880), and *The Stricken Deer* (a biography), by David Cecil, 1929. *Correspondence* edited by Wright in 1904.

Cowper (afterwards **Cowper-Temple**), William Francis (1811-88), second son of the fifth Earl C. and Emily Mary, sister of Viscount Melbourne. Took a prominent part in the movement to prevent the enclosure of common lands, and in 1867 was elected first president of the Commons Preservation Society. Became chairman of the Select Committee on the Enclosure Acts in 1869 when his activities were successful in stopping the enclosure of Epping Forest. His name is chiefly associated with the Cowper-Temple clause (*q.v.*) of the Education Bill, 1870.

Cowper's Glands, a pair of small bodies about the size of a pea, situated in the male just below the apex of the prostate and between the two layers of the triangular ligament. They correspond to Bartholin's glands in the female.

Cowper-Temple Clause. The principle underlying this clause of the Education Act, 1870, which was incorporated on the amendment of Sir (then Mr.) William Cowper-Temple

(*q.v.*), on the second reading of the Bill, introduced by Mr. Arnold-Forster, lies at the root of the whole of the bitter controversies that have raged round the education question during the last forty years. From the moment public elementary schools were established, it became clear that ratepayers generally had a right to demand the exclusion from such schools of the teaching of any catechism or formula distinctive of any individual denominational creed. The C.-T. C. is designed to effect that exclusion, but applies only to a public elementary school. In the opinion of the law officers of the crown, the Board of Education decided that the teaching of the Apostles' Creed, the Lord's Prayer, and the Ten Commandments is not a contravention of the clause, but that the teaching of that part of the catechism known as the 'Duties' is a contravention. The whole question of religious instruction in schools was revived in 1897 when voluntary schools received a grant in aid, and, still more acutely in 1902, when the Education Act of that year made such schools rate-aided. See EDUCATION.

Cowra, a tn. in Australia, Forbes co., in New South Wales, on the r. b. of the Lachlan R., and 220 m. W. of Sydney. It is 60 m. S.W. of Bathurst; has gold, silver, copper, and marble in the neighbourhood. Pop. 3716.

Cowry, the name applied to the shell of any of the gastropod molluscs in the family Cypræidæ. The shells of *Cypræa moneta* are gathered in India, and used whole in Africa in place of money; are very common in England as counters.

Cowslip, or *Primula veris*, a species of Primulaceæ. The common Eng. variety is a bright yellow herbaceous perennial. The flowers are terminal, rising on scapes, stalking in closely umbellate form. The corolla is gamopetalous and tubular below; the stamens are adnate to the corolla.

Cow-wheat, or *Melampyrum*, a genus of the natural order Scrophulariaceæ, consists of plants which are parasitic on roots. It is said to be good for cattle, and especially fattening for cows. There are several varieties among which are: the *M. arvense*, growing in the cornfields of the S. of England, sometimes called purple C.

Cox, David (1793-1859), an Eng. landscape painter, who in 1813 joined the Society of Painters in Water-colours, and in 1814 published *A Treatise on Landscape Painting*. In 1839 he turned his attention to oils, but his oil-paintings, although masterly, are not so well known as his

water-colours. Among his most famous pictures are: 'Peace and War,' 1846, sold for £20 by C., and for £3601 in 1872; 'The Hayfield' in 1875 was sold for £2950, the largest sum paid for a water-colour up to that date; 'The Vale of Clwyd,' 1846; 'Bolton Abbey,' 1847. C.'s favourite scenery was in N. Wales, especially around Bettws-y-Coed. See Hall's *Biography*, 1881; Redgrave's *Century of Painting*, 1893.

Cox, Sir George William (1827-1902), an Eng. divine and mythologist, b. at Benares, India, and educated at Rugby and Trinity College, Oxford. He published *Mythology of the Aryan Nations*, 1870; *Popular Romances of the Middle Ages*, 1871; *History of Greece*, 1874; *General History of Greece*, 1876; *The Establishment of British Rule in India*, and *Introduction to the Science of Comparative Mythology*, 1881; *Concise History of England*, 1887.

Cox, Harold (b. 1859), an Eng. politician and journalist. He went to India and spent two years at the Mohammedan College at Aligarh, as a teacher of mathematics. His publications include several pamphlets on land taxation, free trade and economic subjects.

Cox, Jacob Dolson (1828-1900), an American general, b. in Montreal, Canada; graduated at Overlin, 1851; admitted to the Ohio Bar in 1853 and was elected to the state Senate, 1859. He took part as a brigadier-general, U.S.A., in the West Virginia campaign of 1861, and in many campaigns during the war. He was governor of Ohio, 1866-67, was a representative to Congress, 1877-99, and president of the University of Cincinnati, 1885-89. A great authority on military history. His *Military Reminiscences of the Civil War* was published posthumously (1900).

Cox, James Middleton, American newspaper proprietor and Democratic politician, was b. near Jacksonburg, Ohio, 1870; son of Gilbert Cox. Reared on a farm and educated at a common school, he worked in a printer's office, and as a country school-teacher. Reporter and journalist on the Cincinnati *Enquirer*; acquired the Dayton *Daily News*, 1898; and the Springfield *Press-Republic*, 1903—forming the News League of Ohio. Bought the Miami (Fla.) *Metropolis*, and the Canton (O.) *News*, 1923. Member of 61st and 62nd Congresses (1909-13) for 3rd Ohio dist. Governor of Ohio, 1913-15, 1917-19, and 1919-21. His active and enlightened career in this capacity brought him into prominence, and he was Democratic nominee for the Presidency, 1920.

Cox, Sir Percy Zachariah (b. 1864), British administrator. Educated at Harrow and Sandhurst and began his career in the Army, serving in the Cameronians till 1889 when he joined the Indian staff corps. Later he became vice-consul at Zeila, Somali coast, and filled other consular posts at Berbera, 1894-5, at Muscat, 1899-04 and at Bushire, 1904. He then became political resident for the Persian Gulf and in 1914 secretary for the department of India there and when the Great War began, chief political officer for the Indian Expeditionary force. He was acting minister to Persia in 1919-20 and closed his career by becoming Iraq's first High Commissioner, which post he held for five years. See also IRAQ.

Cox, Samuel (1826-93), an Eng. Nonconformist divine and writer, b. in London. He was appointed president of the Baptist Association in 1873. C. was the founder and editor (1875-84) of the *Expositor*, and the first twenty volumes are nearly all his work. He published numerous theological works, the best known of which are *Salvator Mundi*, 1877; *A Commentary on the Book of Job*, 1880; and *The Larger Hope*, 1883.

Cox, Samuel Hanson (1793-1820), an American Presbyterian divine, b. at Rahway, New Jersey; was pastor in New York and helped to found the University of that city. He was also pastor at Brooklyn. He was a famous orator.

Coxe, Henry Octavius (1811-81), an Eng. librarian and scholar b. at Bucklebury, Berkshire. In 1860 he became head librarian of the Bodleian, Oxford. His reputation as a palæographer induced the gov. to send him to the Levant in search of anct. MSS. in 1857, but his quest was unsuccessful. He published *Rogeri de Wendover Chronica*, 1841-44 (5 vols.) for the Eng. Historical Society; *The Black Prince*, 1842; an historical poem written in Fr. by Chandos Herald; Gower's *Vox Clamantis*, 1850. Under his direction the catalogue of the Bodleian in over 720 volumes was completed, and he was the compiler of *Catalogue of Greek MSS. at the Bodleian*, 1852-54. See *Times*, July 12, 1881, and Burgon's *Twelve Good Men*, 1888.

Coxe, William (1747-1828), an Eng. writer of history and travels, educated at Eton and Cambridge; He travelled largely on the Continent, once as tutor to the Marquis of Blandford and another time as companion to Lord Herbert. His works include: *Travels in Poland, Russia, Sweden, and Denmark*, 1784; *Travels*

in *Switzerland*, 1789; *Memoirs of Sir Robert Walpole*, 1798; *Memoirs of the Kings of Spain of the House of Bourbon*, 1700-1788 (1813); and *Memoirs of the Duke of Marlborough*, 1817-19.

Coxie, or Coxcie, Michael (1494-1592), a Flemish painter, *b.* at Mechlin; studied under Von Orley and later at Rome, where he was a great admirer of Raphael, on whose works he based the style of his own. He *d.* at Antwerp. His chief works include 'St. Sebastian' and 'The Triumph of Christ,' both in the Antwerp Gallery; another 'St. Sebastian' in Mechlin Cathedral; a copy of Van Eyck's 'Adoration of the Lamb,' which he executed for Philip II. of Spain, and which is considered his best work. He spent two years on the copy, and it contains some fine work. This picture, originally at Madrid, is now in several parts, some being in the Munich Gallery and some at Berlin. His works are characterised by fertility of invention, correctness of design, and brilliant colouring.

Coxwell, Henry Tracy (1819-1900), an Eng. aeronaut *b.* at Wouldham, near Rochester. He was destined for the army, but became a dentist. In 1844 he made his first balloon ascent and became a professional aeronaut in 1848, giving numerous exhibitions in England and on the continent. In 1862 with James Glaisher he attained the greatest height on record, 7 m., and added some valuable observations to the science of meteorology. He managed the war balloons for the Gers. during the Franco-Prussian War of 1870. He founded and edited the *Balloon* in 1845. *C.* made his last ascent in 1885. See his *My Life and Balloon Experiences*, 1887.

Coyote, Prairie Wolf, or *Canis latrans*, a wolf-like member of the dog family Canidæ which inhabits N. America. The fur is long and thick, and the animal has a dirty yellow colour. Its mournful howling in the night is an unwelcome sound to lonely travellers.

Coytel, the name of four Fr. painters:—

Noel Coypel (1628-1717), *b.* at Paris; employed on the decoration of the Louvre in 1655; became an academicien in 1659; became director of the Fr. Academy at Rome in 1672. Returning to Paris later, he executed paintings at the Tuileries and the vault of the Church des Invalides.

Antoine Coypel (1661-1722), son of Noel, *b.* at Paris; studied under his father at Rome, and returning to Paris was very popular, decorating

several royal palaces, and becoming principal painter to the king in 1715.

Noel-Nicholas Coypel (1688-1734), son of Noel, *b.* at Paris; became an academicien at twenty-eight. He had a considerable contemporary reputation as a historical painter, which has now diminished.

Charles Coypel (*d.* 1752), son of Noel, succeeded his father in the king's household.

Coypu, the popular name of a species and genus of rodent in the family Actodontidæ. The technical name of this S. American creature is *Myocastor* (or *Myopotamus*) *coypu*, and in habit and appearance it resembles a large water rat. Its maximum length is about 2 ft., its general colour a brownish-red, and the edges of the lips and muzzle are whitish. It has short limbs, small ears, a long naked tail, and the hind-feet are webbed. The fur is used in trimming hats, and the flesh is sometimes eaten. The diet of the *C.* is principally vegetarian.

Coysevox, Antoine (1640-1720), a Fr. sculptor, *b.* at Lyons, of a Spanish family; studied in Paris under Lérambert, and produced a statue of the Virgin before he was seventeen. In 1667 he went to Alsace to decorate the palace of Cardinal Furstenberg, which occupied him for four years. On returning to Paris he executed two statues of Louis XIV., one being an equestrian figure commissioned by the province of Bretagne. He became very famous, and was admitted into the Academy in 1676, later becoming chancellor of that body. Among his chief works are the tombs of Cardinal Mazarin and of Colbert, in St. Eustache; the monument of Charles le Brun in St. Nicholas; the statue of Condé and that of Louis XIV. in Notre Dame; the two-winged horses in marble surmounted by Fame and Mercury placed one on each side of the entrance to the garden of the Tuileries from the Place de la Concorde; and several statues in the gardens of Marly and Versailles. His bust by Lemoine is in the Musée des Monuments Français. See De Fontenai, *Dictionnaire des Artistes*, and Galignani, *History of Paris*.

Cozens, Alexander (*d.* 1786), a landscape painter, *b.* in Russia, a natural son of Peter the Great and a woman from Deptford. He was sent to Italy to study painting, and from there went to England and settled there in 1746. From 1760 to 1781 he exhibited many pictures and some of them at the Royal Academy. During this period, however, he spent much time in teaching, and was from 1763 to 1768 drawing

master at Eton. Many of his earlier works in colour, pen and ink, and pencil, are in the British Museum. He was the author of several works and articles on art.

Cozens, John Robert (1752-99), a landscape painter in water-colours, was the son of Alexander C., and was b. in England. It has been said that he was 'the greatest genius who ever painted a landscape,' but he is undoubtedly the greatest landscape painter before Turner. He was first instructed in painting by his father. In 1776 he went to Switzerland with R. Payne Knight, and returned to England in 1782; in 1783 he went to Italy with William Beckford. He first exhibited at the Incorporated Society of British Artists in 1767, and he did some beautiful sketches of the trees in Windsor Forest. In 1794 he became insane. Many of his works are to be found in the Print Room at the British Museum; they are noted for their delicacy and their beautiful colouring, and they certainly influenced Turner and Girtin. Constable said that 'the works of Cozens were all poetry.'

Crab, the name applied to various mechanical weight-lifting contrivances, including an engine with three claws used in the launching and docking of ships, a portable windlass used in building and in loading and unloading operations and a kind of pillar used as a capstan.

Crab, a popular term applied to numerous species of decapod crustaceans, properly only to those in the division Brachyura, but also commonly to others included in the Anomura. The true Cs. have short antennae, eyes which can be retracted into sockets, a short tail which is tucked up under the cephalothorax, a compressed body covered by a hard carapace, two large anterior claws curved closely round the carapace, and these are usually larger in the male than in the female. In diet they are carnivorous, and will feed on carrion or on living matter; a few species sometimes vary their food with vegetables. Nearly all of the Cs. are marine, but there exist also land-Cs., which would drown if kept in water; some are so tiny that they will hide in disused shells, and other have a fondness for burrowing in sand and mud. Many of the males are pugnacious, and will fight bitterly with an opponent; some are capable of casting a claw in self-preservation, and all are able to regenerate a missing limb. In intelligence they rank probably highest of the crustaceans. The hermit or soldier Cs. are anomurous, and are characterised by having a fleshy, spirally-twisted abdomen,

usually covered over by an empty gastropod shell; they are united in the tribe Paguridea, of which the genus *Pagurus* is typical. The species in the tribe Galatheaidea are symmetrical in shape, and the young are noted for the length of the spines on the carapace; the species and genus, *Æglea laevis*, is found in fresh-water streams of S. America. The tribe Hippidea comprises the sand or mole-Cs., and *Hippa eremita* burrows in the sand. The brachyurous species are divided into five tribes: (1) Brachyura Anomala, Notopoda or Dromiacea, of which *Dromia vulgaris* is a common British representative; (2) Oxytomata, in which are found the genera *Dorippe* and *Cymonomus*; (3) Oxyrhyncha, which contains spider-Cs. and others, e.g. *Maia*; (4) Catometopa, in which occurs *Sesarma pisonii*, a climbing and air-breathing species, and also the calling-C. genus *Gelastimus*, whose members have one claw larger than the others, and this is borne in a beckoning manner; (5) Cyclometopa, to which belongs *Cancer pagurus*, the large edible C. seen in markets, *Carcinus maenas*, the common shore-C. of Britain, *Portunus puber*, the velvet or devil C., and *Corystes cassivelaunus*, the masked C., a curious species bearing on its carapace marking as of a human face.

Crab, Roger (c. 1621-80), an Eng. hermit, b. in Buckinghamshire. From 1642-49 he served in the parliamentary army and was wounded in the head. In 1651 he sold off his business in Chesham as a 'haberdasher of hats' and built himself a hut where he retired and practised great austerities. He gained a reputation as a 'witch' and suffered great persecutions, being imprisoned, cudgelled, and put in the stocks. He published *The English Hermit*, 1655; *Dagon's Downfall*; and tracts against the Quakers. See Chambers' *Book of Days*, 1862-64.

Crab-apple, or *Pyrus malus*, a member of the family Rosaceae, is a wild apple of which there are many varieties. The fruit of the wild varieties found in Britain in hedges is not sweet nor pleasant to the taste, and is chiefly used in jellies and preserves. It is the origin of the garden apple, but entirely lacks the flavour that cultivation has produced. The American C., *Malus coronaria*, is sweet, and grows on a small tree in Columbia. The flowers are very beautiful, and the fruit, which hangs on long stems, is used for making sauces. The smallest variety is the Oregon C. found in California, not much larger than a hawthorn berry.

Crabbe, George (1754-1832), poet, the son of a schoolmaster and parish clerk who settled at Aldeborough, had but a very rudimentary education, but by his devotion to his books soon conquered this defect. Destined for the medical profession, he served as apprentice, first to a doctor at Wickham Brook, and presently to another at Woodbridge, in which latter place he first met his future wife, Sarah Elmy, the 'Mira' of his poems. He now began to write verse, and, in 1780, with a borrowed five-pound note and some manuscripts, went to London to seek fame and fortune. He found the metropolis a cold-hearted stepmother, and he was at the end of his tether, when, having failed to secure a hearing elsewhere, he sent *The Candidate* to Burke. Burke read it, saw its merits, and induced Dodsley to publish it. At Burke's suggestion he took orders, and, after a term as a curate, was in 1782 appointed chaplain to the Duke of Rutland. In the following year *The Village* was given to the world, and three years later C. published *The Newspaper*, after which, though he wrote—and destroyed—diligently, he remained silent for more than a score of years. In 1807 he broke his long silence by the publication of *The Parish Register*, and this work he followed four years later with *The Borough*. He paid a visit to London in 1817, and was everywhere received as the distinguished man of letters he was. Two years later he published his last great work, *Tales of the Hall*, for which John Murray gave him three thousand pounds. He died in 1832 at Trowbridge, where the living had in 1813 been given to him by the Duke of Rutland. A monument to his memory has been erected in Trowbridge Church. Much of his work was in a way a protest against the pastoral poetry in the style of *Sweet Auburn*. It was his endeavour to paint nature as it was, and in this he succeeded greatly. His life was written by his son, George (1834).

Cracidae, or Cracinae, a family of birds belonging to the order Galliformes, sub-order Galli. They are found through Central and S. America, where they inhabit forests within reach of the coast or wooded hills near rivers. They live on leaves and fruit. The nests are carelessly constructed on the level branch of a tree or bush. The C. vary in colour from black to blackish-green. The Penelopinae are brown or olive-green in colour and number fifteen species. The Oreophasinae contains only the Guatemala pheasant, a splendid bird with soft greenish-black plumage,

brown at the side and below. The feet are vermillion.

Cracovienne (Krakoviak), the national dance of the Polish peasantry in the district round Cracow. It has a strongly marked rhythm in 3 time and is frequently accompanied by singing.

Cracow, or Krakow (Polish Kraków, Ger. Krakau, Lat. Cracovia), a tn. of Poland, on l. b. of R. Vistula, 158 m. S.W. of Warsaw. It occupies an important strategical position, 672 ft. above sea-level, in a wide plain commanding the river approach to Silesia and to the Danube valley via the Moravian Gate. The city may be divided into the old town, with promenades formed on the old walls; the castle quarter, lying to the S.; and the suburbs, including the Jewish Kasimierz quarter and Podgorz, on the other side of the river, with which it is connected by a bridge built in 1850. C. is a very picturesque town, and contains many interesting buildings. Among them are the castle, on the Waweh Rock, long the residence of the kings of Poland, but now a barrack; the Gothic cathedral (1320-59), adjoining the castle, where many of the kings and famous men of Poland, including John Sobieski, Poniatowski, and Kosciuszko, are buried, and which contains Thorwaldsen's statue of Christ; the university, next to Prague the oldest in Central Europe, having been founded in 1364 by Casimir the Great, and reorganised in 1817, and which has fine new buildings in the western part of the city, including a library of 350,000 volumes, a botanic garden, and an observatory; the recently restored Cloth Hall, in Ring Square, which contains the Polish National Museum; the Episcopal Palace; the Royal Academy of Sciences; and the Czartoryski Museum. About 3 m. to the W. of the city is a grassy tumulus over 100 ft. high, which was raised in 1820-23 in commemoration of the patriot Kosciuszko. Another mound has been piled up in memory of the legendary Krak, or Krakus, a Slavonic prince, who is said to have founded the city about 700, and to have given it its name. It is more probable, however, that the name is derived from the Slavonic *krak*, a raven. There are manufactures of cloth, leather, machinery, agricultural implements, chemicals, beer, tobacco, etc., which have revived greatly in recent years, and the town has important fairs. C. was the capital of the kingdom of Poland from 1320 to 1609, when Warsaw became the seat of government, C. remaining the coronation city for a century and a half longer. The third

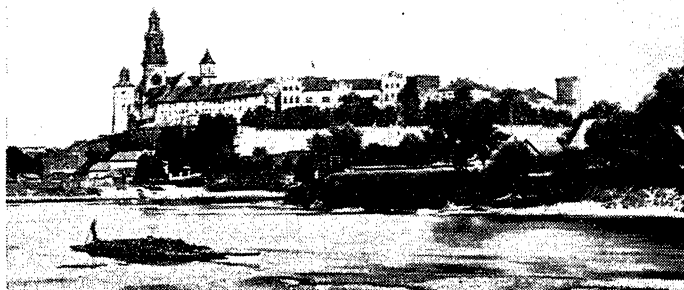
partition of Poland in 1795 assigned C. to Austria. From 1809-15 it was part of the duchy of Warsaw, and during 1815-46 was the capital of the republic of C. This, forming the last stronghold of Polish independence, comprised a territory of 445 sq. m. After a rebellion it was re-annexed to Austria in Dec. 1846. During the Great War much fighting took place round C. in the latter months of 1914. In Sept. of that year there were indications that the Russians under the Grand Duke Nicholas would endeavour to enter Germany via Moravia, and the Central Powers made plans to counter this move. In their retreat before the Russian 'steam-roller' both Ger. and Austro-

Cradley, a par. and tn., Worcestershire, England, $3\frac{1}{2}$ m. S. of Dudley, with coal and iron mines and manufactures of iron and steel goods. Pop. 7600.

Cradling, a term used in architecture to designate a slight framework of timber built under floors to form curved ceilings.

Craddock, a tn. and dist. in Cape Colony, S. Africa, 56 m. S.S.E. of Middelburg. Alt. 2850 ft. The pop. of the dist. is 18,380, of whom 5960 are white and occupied in cattle raising. Pop of tn. 6800, of whom 3275 are white.

Craddock, Rear-Admiral Sir Christopher, British sailor. He commanded the cruiser squadron at the battle of



[E. N. A.]

CRACOW

The Vistula, with the Cathedral of St. Stanislaus and the old Royal Castle in background

Hungarian troops in this region concentrated upon C, the capture of which was essential to the Russian plan of invading Germany. During the last weeks of Nov. the Russians made persistent efforts to break the line between Lodz and C., but failed, and at the latter place the Austrian forces gallantly held their own and foiled all Russian onslaughts. In 1917 there were riots in C., as in other important towns of the constituent countries of the Dual Monarchy, organised by agitators against the oppression of subject nationalities. The city is still the great centre of Polish national life, and in the university, now attended by about 1700 students, instruction is given in the Polish language. Mean temp. for the year 45.7° F.; winter, 26° F.; summer, 65.5° F. Mean annual rainfall, 24.8 in. Pop. 181,700.

Craddock, Charles Egbert, the pen-name of Murfree, Mary Noailles (q.v.).

Coronel (q.v.) Nov. 1, 1914, which was sunk by the Ger. squadron under Admiral Von Spee. C. going down in his flagship the *Monmouth*. C. was b. at Hartforth in Yorkshire in 1862, and entered the navy in 1875. His first active service was in the 1884 Egyptian Campaign, and he was also in the 1891 Campaign in the Sudan. In the 1900 China Campaign he commanded the Naval Brigade. His gallantry and fearlessness were proverbial in the Navy. Promoted Captain 1900, and Rear-Admiral in 1910. There is a memorial to him in York Minster. He was a writer on naval subjects.

Crafers, a tn., S. Australia, 21 m. S.E. of Adelaide; nearest station Mount Lofty. The district is famous for fruit-growing. Pop. 2000.

Crafton, a borough in Allegheny co., Pennsylvania, U.S.A. Pop. 7004.

Crag, a term applied in geology to the uppermost of the Tertiary-strata in England. It is a shelly sand occur-

ring in East Anglia, being the only example of a Pliocene stratum. The C. strata consist of the following members, beginning with the uppermost: (1) The Forest Bed series, containing many animal and plant remains; (2) the Chillesford beds, containing a molluscan fauna; (3) the Norwich C., containing both marine and freshwater shells; (4) the Red C., being a subcalcareous sand rich in shells; (5) the White or Coral-line C., being a calcareous mass with argillaceous bands containing Mollusca and Bryozoa. The term C. is taken from the local name for shelly sand.

Crag and Tail, the term applied to a peculiar formation of hills in which one side forms a steep and precipitous cliff, while the other 'tails' away in a gentle slope. This is due to glacial action on rocks of varying hardness, the harder rocks (generally igneous, such as dolerite or basalt) having resisted denudation and so protecting the softer rocks on the lee side. The 'crag' thus generally faces the direction from which the ice came, while the 'tail' faces the direction in which it was advancing. The phenomenon is very prevalent in the Lowlands of Scotland and especially round Edinburgh; the Castle Rock of Edinburgh and the Abbey Craig of Stirling are two of the most famous examples of this formation.

Craig, Edith, a daughter of Ellen Terry, and a sister of Gordon Craig, b. Dec. 9, 1869. First appearance on stage: Court Theatre, 1878. Acted in Henry Irving's company and many others. Toured with her mother as stage-manager, in America, 1907. Stage-manager and producer for the Pioneer Players.

Craig, John (c. 1511-1600), a Scottish reformer, educated at St. Andrews and became a monk. He was patronised by Cardinal Pole, and on his advice joined the Dominicans, becoming rector of their school at Bologna. He was converted to Protestantism by reading Calvin's *Institutes*, and having made open confession was tried by the Inquisition at Rome and condemned to be burnt to death. The day before his execution, however, Pope Paul IV. died, and the prison being broken open by a mob, he escaped and returned to Scotland about 1560, where he became one of the most popular preachers of the recently established Reformation. In 1574 he became minister of Aberdeen, in 1577 the colleague of John Knox at the parish church of Edinburgh, and in 1579 one of the chaplains of the household of James VI. In 1580 he drew up the *National Covenant*, and later

compiled part of the *Second Book of Discipline*, and several treatises.

Craig, Sir Thomas (1548-1608), a Scottish jurist, b. in Edinburgh; studied at St. Andrews University and in Paris. His great work, *Jus Feudale*, completed in 1603, but only published in 1655, is still consulted, and he also wrote a treatise proving the legality of James's right to the English throne. See his Life by P. F. Tytler, 1823.

Craigavon, Sir James Craig, Bart., 1st Viscount, of Stormont, co. Down, first Prime Minister of N. Ireland; b. Jan. 8 1871; sixth son of James Craig, of Craigavon, Co. Down. Educated at Merchiston School, Edinburgh. Once a captain in R.I. Rifles, served in S. African War (1899-1902) with Imperial Yeomanry and Irish Horse. Sat as Unionist in Imperial Parliament 1906-21 (for E. Down till 1918, then for Mid-Down). A.A. and Q.M.G. of 36th (Ulster) Div., 1914-15. Baronet, 1914. Treasurer of H.M. Household, 1916-18; Parliamentary Secretary to Ministry of Pensions, 1919-20; Parliamentary and Financial Secretary to Admiralty, 1920-21. Had been a member of Ulster Unionist Council (see CARSON, BARON), 1912-14; and, when separate Gov. of N. Ireland came into existence, 1921, he became Prime Minister; having been elected to its Parliament as one of the members for Down—a seat he still holds, notwithstanding his peerage. Made Viscount, Jan. 20, 1927.

Craigie, Pearl Mary Teresa, see HOBBS, JOHN OLIVER.

Craig, Mrs. (Dinah Maria Mulock) (1826-87), best known as the author of *John Halifax, Gentleman*. wsa b. at Stoke-upon-Trent. She settled in London at twenty to write for the support of an invalid mother and two young brothers. Her first novel, *The Ogilvies* (1849), was followed by *Olive, The Head of the Family*, and *Agatha's Husband*. *John Halifax, Gentleman* (1857), met with an immense success not only in England, but, through translation, in France, Germany, Italy, Greece, and Russia. A pension of £60 a year awarded to her she placed at the service of poor authors. Among her other works are: *Thirty Years' Poems*, *A Woman's Thoughts about Women*, *Concerning Men*, and other Papers, etc.

Crail, the Caryll of the ninth century, an antiquated seaport town of Scotland, in Fifeshire, 9 m. S.E. of St. Andrews. Its fishing industry has greatly declined, but it is now an attractive little summer resort with some interesting historical associations. Here John Knox preached

his 'idolatrous sermon,' June 9, 1559.

Crailsheim (Krailsheim), a tn. of Württemberg, Germany, on the Jagst, 13 m. N. of Ellwangen. Interesting architecture; tanning and weaving industries. Pop. 6500.

Craiova (Kraiova), a tn. of Rumania, 120 m. W. of Bucharest, with many manufactures, including belting, candles, soap, conserves, and terra cotta, and flour mills. There are many churches and synagogues. It is the centre of a very fertile district. Pop. 70,000.

Crake, a member of the family of the Rallidæ (Rails), order of the Gruiformes. The best known British C. is the corn-C. whose cry may be heard all over the country in the early summer. They are short-billed, thick-bodied birds. The colour is reddish-brown, lighter below, with dark brown streaks on the feathers above.

Cram, Ralph Adams, American architect and author, b. at Hampton Falls, N. H., 1863; son of Rev. Wm. Augustine C. Educated at Augusta (Maine), Westford (Mass.) Acad., and Exeter (N. H.) High School. Practising architect since 1889, when he opened an office in Boston. As senior partner of Cram, Goodhue, and Ferguson, he was helped to design many notable buildings—e.g.: Graduate Coll. and Cleveland Tower, Princeton Univ.; the cathedrals of St. Alban, Toronto, and St. Paul, Detroit. He was made consulting architect for the great New York Cathedral of St. John the Divine—being an enthusiast for and an authority on Gothic. Among his books are: *The Ruined Abbeys of Great Britain*, 1906; *Walled Towns*, 1919; *Towards the Great Peace*, 1922.

Crambe Maritima, or Sea-kail, a species of Cruciferae found on British coasts and cultivated in gardens for its delicate, tender shoots. The plant is glaucous and spreading, with broad, toothed, sinuated, fleshy leaves coated with wax, and dense corymbs of large white flowers.

Crambus (Gk. *κράμβος*, parched), a genus of insects in the pyralid family Crambidae, the veneers, or grass-moths, is well represented in Britain. The species are small and inconspicuous, and are to be found in grassy places.

Cramer, Gabriel (1704-52), a Swiss mathematician. Until 1724 he held the chair of mathematics in the university of Geneva jointly with Calendrini. He wrote *Introduction à l'Analyse des Lignes Courbes Algébriques*, and edited the works of Johann Bernoulli and the *Commercium epistolicum* of Leibnitz and Bernoulli.

Cramer, Johann Baptist (1771-1858), German pianist, one of a family of musicians, the most famous of the three sons of Wilhelm C., himself a musician settled in London. His compositions are no longer valued, but his *Studies* have become classic and are still reprinted. He founded the music-publishing firm which bears his name.

Cramlington, a tn. of Northumberland, 8 m. N.N.E. of Newcastle; coal-mining industry. Pop. 8517.

Cramp, a spasmodic, painful, and sustained contraction of a muscle or group of muscles. It may effect a limb, or internal muscles, when the sensation is particularly discomforting. There is often no observable cause, though cold, fatigue, or a constrained position may bring on painful cramping. The muscles most often affected are those of the calf and the back of the thigh, and persons of gouty tendencies are specially liable. The muscles suddenly bunch themselves into a hard knot, and are best made to relax by rubbing or stretching; when the calf is cramped, for instance, the foot should be bent upwards with the hand as far as possible.

Bathers' cramp is obscure in its nature. Many bathers know the sudden cramping of the limbs due to fatigue or too long immersion in cold water, but the affection which suddenly renders helpless the most capable swimmer must be more severe than that. In all probability the respiratory centres are affected, causing a painful and spasmodic contraction of the muscles actuating the walls of the lungs. In most instances the lungs appear to be immediately flooded with water, and the swimmer sinks like a stone.

Writers' cramp, *telegraphists' c.*, etc., are conditions following on the continual use of a set of muscles in a particular way. The diseases are gradual in their onset, beginning with a slight disturbance in the usual movements and proceeding to total helplessness in those movements, although the same muscles may be used quite comfortably in another way. Massage is said to have beneficial effects in some instances, but the cause probably lies in the nervous centres, and prolonged rest is usually necessary to effect a cure. C. is symptomatic of many diseases. Cholera produces C. of the lower extremities, arsenical poisoning is accompanied by painful contractions, colic brings on internal Cs., and the disturbance of the relative positions of organs in pregnancy produces characteristic Cs.

Cramp, **Crampers**, a term applied

to a metal bar used in masonry. Usually composed of iron, the bar is bent at both ends and let into the upper surface of two pieces of stone which have been joined together by their perpendicular faces. Copper is the most durable material for the purpose.

Cramp Rings, rings worn to ward off attacks of cramp. From the eleventh century to the time of Queen Mary rings blessed by the sovereign on Good Friday, and made of the gold and silver coins offered by him on that festival, were supposed to possess the power of curing cramp, scrofula or 'the king's evil,' and epilepsy.

Crampton, Thomas Russell (1816-88), a railway engineer, b. at Broadstairs. He invented the locomotive which bears his name and which for forty years was used by the North of France railway for its express trains. He invented also a rotary dust-fuel furnace, brick-making machinery, etc., and an automatic hydraulic tunnel-boring machine which aroused great interest in connection with the Channel tunnel project. C. laid the first successful submarine cable between Dover and Calais.

Cran, in Scotland, a measure of herring, just taken from the net, that will fill a barrel; equal to 37½ imperial gallons or about 750 herrings.

Cranach (or **Kranach**), **Lucas** (1472-1553), a German painter and engraver, b. at Cranach, near Bamberg, Bavaria, his family name being Sunder. For nearly fifty years after this he worked at the Electoral Palace at Wittenberg. In 1508 Frederick the Wise granted him the crest of a winged serpent, with which all his principal pictures are marked. He was an intimate friend of Melancthon and Luther, painting portraits of both, and being a witness to, and one of the connivers at the latter's marriage to Catherine Bora. He was twice burgomaster of Wittenberg, and died at Weimar. His style seems to have been formed by Matthew Grünewald, and his work is more admirable for invention than execution. Among his best works are 'Christ on the Cross,' being the altarpiece at Weimar, and 'The Preaching of John the Baptist.' His engravings, both on wood and copper, are excellent but very rare. His works are numerous, and may be seen at Weimar, Prague, Leipzig, Schneberg, Gotha, Munich, and Berlin. See his *Life and Works* by Heller (Nürnberg), 1854.

Cranach (or **Kranach**), **Lucas** (1816-88), called 'the Younger,' a German painter, son of Lucas C. 'the Elder.' The son was his father's devoted helper and collaborator, and it is often

difficult to decide whether a picture is the work of the elder or of the younger C., so much do their separate paintings resemble each other in style, etc. Some of his pictures are in Wittenberg and others in Dresden, Munich, and Berlin.

Cranberry, a species of *Vaccinium*, belongs to the Ericaceæ and is a member of the same genus as the blackberry (*q.v.*) and puckleberry. The British C. is found wild abundantly in the fens of Norfolk, Lincolnshire, and many other parts of England, and it occurs frequently in the Highlands of Scotland. The fruit is a round, sharp red berry which makes excellent tarts and preserves, and it is often stewed with apples to give them a nice colour.

Cranbourne, a par. of Dorsetshire, England, 26 m. N.E. of Dorchester. Boadicea is believed to have fought the Romans here. Pop. 700.

Cranbrook, a little mkt. tn. and par. pleasantly situated in the weald of Kent. It has a large trade in hops and malt. From the fourteenth century to the seventeenth it was a busy seat of the broadcloth manufacture introduced there by the Flemings. St. Dunstan's church contains a celebrated baptistery. Pop. of par. 3829.

Crandall, Prudence (1803-90), an American school teacher, b. at Hopkinton, Rhode Is.; her parents were Quakers; she established at Canterbury, Conn., a private academy for girls, where she lost her white patrons by admitting a coloured child. She then opened, on advice of W. L. Garrison, a school for 'young ladies and little misses of colour,' in connection with which she was subjected not only to social persecution, but also to prosecution under special enactment of the state legislature—i.e. the Black Law of May 24, 1833. She refused to obey this law, and was imprisoned several months. In 1834 her house was attacked and partially destroyed. She gave up her project and married the Rev. Calvin Philleo; after which she lived in New York, Illinois, and Kansas.

Crane, a machine for raising, lowering, or placing in position heavy bodies. From early times such appliances have been in use, but of simple construction actuated by manual or animal power. With public works of magnitude better machines came into being, first actuated by hand power only, later by steam, hydraulic power, or electricity.

Derrick cranes have an upright member pivoted at the ends, the top being maintained in position by two raking members anchored at their lower ends. From the foot of the der-

rick slopes a raking jib, guyed at its upper end to the derrick top, suitable crab and lifting tackle being provided.

Portable cranes are jib Cs. mounted upon a carriage, running upon rails. The jib is tied back to the upper part of a frame turning horizontally upon a pivot. The rear end of the frame is carried back to support the crab gear, which, with supplementary weights, balances, in whole or in part, the load to be lifted. Steam power is also used to operate such Cs. a vertical boiler and engine, with the necessary gear and winding drum, being substituted for the crab.

Gantry cranes consist of girders mounted on end wheels, carrying a crab, and are able to lift and transfer loads to the limit of the gantry run. The crab is made also to travel along its girders, giving a double motion.

Goliath cranes have power appliances for lifting, mounted and running upon girders with rigidly framed legs at either end supported by wheels resting upon rails, along which the whole machine may move. They are used in the shifting and setting of heavy blocks in harbour work, or other heavy operations.

Titan cranes used for similar purposes have horizontal girders, capable of swivelling upon a turntable which is mounted at the top of a travelling substructure. At one end of the double girder is the power plant. By an ingenious arrangement, the load can be moved along while hanging from the arm of the Titan, remaining at the same level, rising or falling as desired.

Hammer-headed cranes are similar to Titans, but work on a fixed tower.

Hydraulic cranes, largely used about docks, are simple machines operated by water pressure through the medium of a ram having pulleys, served with a chain or rope passing over the head of a projecting jib, which may be swan-necked in form.

See Anton Böttcher, *Cranes, and Trade Catalogues*.

Crane, a member of the family of the Gruidæ, order Gruiformes, superficially resembling the heron, with which it is commonly confused, and which in Scotland is usually called the C. The Cs. are tall birds with long legs and necks, the head being either naked or tufted. Their wings are short and powerful, the feet unwebbed. They are the largest of the vading birds and are found in most parts of the world except Malaysia. The hind toe is greatly elevated, and has a sharp claw. The European C. is now only known in England as a migrant, passing to the north to breed.

Crane, Frank, American clergyman and author; b. at Urbana, Ill., 1861;

son of James L. Crane. Educated at Illinois Wesleyan University. Ordained to Methodist Episcopal ministry, 1882; pastor of Trinity and Hyde Park M.E. churches, Chicago, 1896-1903; later of the Union Congregational church, Worcester, Mass., 1904-09. Then took up journalism and authorship. Works: *The Religion of Tomorrow*, 1899; *Vision*, 1907; *The Song of the Infinite*, 1909; *Human Confessions*, 1911; *God and Democracy*, 1911; *Lame and Lovely*, 1912; *Foot Notes to Life*, 1923; *War and World-Government*, 1915; *Just Human*, 1915; *Adventures in Common Sense*, 1916; *The Looking Glass*, 1917; *Christmas and the Year Round*, 1917; *Four Hundred Four-Minute Essays* (10 vols.), 1919; *The Crane Classics* (10 vols.), 1920; *Why I am a Christian*, 1924; *Everyday Wisdom* (10 vols.), 1927.

Crane, Stephen (1871-1900), in some ways one of the most significant figures in latterday American literature, b. Newark, New Jersey, U.S.A. Nov. 1, 1871. Fourteenth child of a Methodist preacher, he studied for some time at Syracuse University and then entered newspaper work. His first book, a harshly realistic novel, *Maggie: a Girl of the Streets*, did not attract much attention, but in 1895, at the age of 24, he sprang into immediate fame with his masterpiece *The Red Badge of Courage*. For a mere youth, who had never witnessed a battle nor ever been a soldier, it was an amazing, graphic picture of war, the scenes taking place during the American Civil War. It was not only an outstanding piece of realism in American literature, but, at the same time, a psychological study of the moods and impressions of a common soldier. After that, to the newspaper proprietors, C. seemed the natural man to send to the front as a war correspondent and as such he saw the Greco-Turkish War and America's war with Spain. Prior to that, he had engaged in a filibustering expedition to Cuba. The ship on which he was a passenger, was wrecked. The exposure permanently affected his health and eventually brought about his early death, but it also gave him the inspiration for one of the finest short pieces in American literature—*The Open Boat*. C. was also the precursor of the free-verse school, which in after years was to be made celebrated by the Imagists. He pointed the way in his two volumes of verse *Black Riders* and *War is Kind*. Failing in health, C. came to England to live and became a close friend of the famous novelist, Joseph Conrad. He d. of consumption at Baden Jan. 5, 1900.

Crane, Thomas Frederick (b. 1844), an American folklorist, b. at New York City; he graduated at Princeton. At Cornell University he was professor of the Romance languages, 1868-81. He has written *Italian Popular Tales*, *Le Romanisme français*, etc., and has contributed many articles to the *North American Review*, *The International Review*, *Harper's Magazine*.

Crane, Walter (1846-1915), an English artist well-known as a painter, designer, book-illustrator, writer and lecturer. He was b. in Liverpool, son of Thomas C., an artist from whom he received his first lessons in painting. His illustrated children's books are masterpieces and include: *Baby's Bouquet*, *Pan-pipes*. Grimm's *Household Stories*, Spenser's *Faerie Queene*, *Illustrations to Shakespeare's Tempest*, etc. He owed his reputation as a painter chiefly to his water-colour paintings, though he worked in oils too. Among his easel pictures are: 'The Bridge of Life,' 'The Chariot of the Hours,' 'La Belle Dame Sans Merci,' 'A Masque of the Four Seasons,' 'Prometheus Unbound,' etc. His pictures are generally allegorical in subject and are characterised by minuteness of decoration; the pre-Raphaelite influence predominates. A number of private homes and public buildings contain decorative work—modelling, friezes, panels, and mosaics—by him, and some of his designs for tapestries are in the S. Kensington Museum. He, jointly with William Morris, brought about the revival of the decorative arts and crafts in England; he was the first President of the Arts and Crafts Society, which he helped to found in 1888. He wrote *The Bases of Design, Line and Form, Ideals in Art*, etc. See Konody's *Art of W. Crane*.

Crane, William Henry (1845-1928), American actor. Began theatrical career in opera, but after some twelve years revealed so great a talent for comedy that he gave up opera for the drama. In New York in 1877, he won immediate popularity in *Our Boarding House*, in which he began what proved to be a lasting association with Stuart Robson. Their greatest hit was in *The Henrietta*, after which C. followed his own path once more and produced a number of plays by American authors, one of the most successful being *David Harum*, based on the novel of that name. Also gained a high reputation for performances in such English plays as *The Rivals*, *She Stoops to Conquer* and some Shakespearian comedies. His reminiscences were published under the title of *Foot-prints and Echoes*.

Crane-fly, or Daddy-long-legs, the popular names given to members of the Tipulidæ, a family of dipterous insects containing over 1000 species world-wide in distribution. The significance of the long and fragile legs is unknown, but their presence has given the owners their nicknames. The larvæ are aquatic and terrestrial; the latter grubs are often called leather-jackets, and are destructive to the roots of crops. The abdomen of the female insect terminates in a long ovipositor.

Cranganore, see KODUNGALUR.

Crangon, a genus of decapod crustaceans, belongs to the family Crangonidæ. *C. vulgaris* is a very well-known species, as it is the common shrimp found on our shores.

Craniata, a term applied in various ways to members of the animal kingdom, but in its widest and most usual sense it is synonymous with the Vertebrata (q.v.).

Craniotabes, an atrophy of the skull occurring in infancy, resulting from syphilis, rickets, or marasmus.

Cranium, see SKULL.

Crank, in mechanics, a device consisting of C. arm and C. pin by means of which rectilinear reciprocating motion is changed into rotary motion. The handle of a grindstone is an example of a single C., while the C. of a wheel changes the rectilinear motion of a piston-rod. The 'bell C.' merely changes the direction of rectilinear motion.

Cranmer, Thomas (1489-1556), Archbishop of Canterbury, b. of a good family at Aslacton in Nottinghamshire. After being educated under a tutor remarkable, even in those days, for sternness, he was sent in 1503 to Jesus College, Cambridge, where he became a fellow. He remained as divinity professor at this college until 1528. The 'sweating sickness' was then raging throughout the county, to avoid which C. removed to Waltham with two of his pupils. Here he met Fox and Gardiner, to whom, in conversation on the question of Henry VIII.'s divorce from Catherine, he made the remark which was the cause of all his after promotion. His suggestion was that Henry should have recourse to the canonists and universities rather than to the pope. Henry immediately commanded him to write a treatise on the subject, and to be prepared to support his position. In 1530 C. was sent on an embassy to Rome, and two years later to Germany. The pope made him Grand Penitentiary of England, and on his German embassy he married the niece of the reformer Osiander, an uncanonical but not illegal proceed-

ing, though he was already high in the church. He was summoned back to England on the death of Warham to fill the vacant archiepiscopal throne, and, preceded by his wife, he came reluctantly to be consecrated on March 30, 1533. Henry had succeeded in his choice of a pliable minister. In May C. pronounced the king's marriage with Catherine to be void *ab initio*, and that with Anne Boleyn, secretly celebrated the January before, to be valid. Three years later he annulled the marriage with Anne in the same fashion. In 1540 he divorced him from Anne of Cleves, and next year he was instrumental in securing Catherine



THOMAS CRANMER

Howard's condemnation. Yet, although C.'s frailty led him into culpable compliance with the king's wishes, he was naturally kind-hearted. He opposed the Six Articles (1539), and did his best to save the lives of Fisher, More, and Anne. He had little to do with the dissolution of the monasteries, though he was connected with the deaths of Frith, Lambert, and other heretics. C.'s chief work was in the direction of the English Reformation. From the beginning he had been zealous for the Bible, and in 1538 it was ordered that a copy should be placed in every church. In 1545 he published his *Litany*, almost identical with the one at present in use, which shows his great merit as a master of prose. In

1548 came his *Catechism*, and in 1550 his *Defence of the True and Catholic Doctrine of the Sacrament*, a powerful attack on transubstantiation. His influence in the compilation of the Prayer Book itself can hardly be over-estimated. On the accession of Mary, C. was brought to trial and deposed from his office of archbishop. Finally, he was persuaded to recant. Then at the end courage came to him, and at the moment when he should publicly have proclaimed his recantation, he restated his old position and deplored his past cowardice. Courageously then on March 21, 1556, he met his death at the stake, first burning the hand which had signed his recantation. See *Lives* by Mason Collett and Dean Hook.

Crannog (Celtic *crann*, a tree), the modern name for the lake-dwellings or stockaded islands formerly common in Scotland and Ireland. They consist of stockaded wooden huts built upon a floor of earth and flagstones having for foundation a shallow or islet raised and strengthened by brushwood, piles and gravel. This mode of defence seems to have been peculiar to the Celtic races, but they bear no resemblance to the lake-dwellings of Switzerland. No Cs. have been found in England.

Cransac, a large commune of France in Aveyron, an arron. of Villefranche, 20 m. distant. Mineral springs and coal-mines. Pop. 6300.

Cranston, a city of Providence co., Rhode Island, U.S.A., with an area of 29 sq. m. It includes the cotton manufacturing villages of Cranston, Pontiac and Natick. There is a state farm. Pop. 42,911.

Cranwell, Lincs., situated 6 m. from Sleaford, has become noted since the Great War as the headquarters of the R.A.F. command and the Cadet College. It has also an Electrical and Wireless School, and an R.A.F. hospital. The college is run on parallel lines to Sandhurst and Woolwich, and all candidates for entry must sit for the 'Navy, Army and Air Force Entrance Examination' held in June and Nov. of each year. Candidates must be between the ages of 17½ and 19½ and in physically fit condition. In addition to aviation, they are taught engineering. The course extends over a period of two years, and the cost is approximately £250; scholarships are awarded and the sons of service men are sometimes admitted for reduced fees. See: *Regulations for Entry into the R.A.F. Cadet College, Cranwell (A.P. 121)*, H.M. Stationery Office, Adastral House, Kingsway, W.C.

Craonne, small Fr. tn., 75 m. N.E. of Paris and 10 m. S.W. of Laon.

During the Great War it was the scene of much fighting during the Fr. offensive in April 1917, it being a key position to the famous road, the Chemin des Dames. Here the Gers. were strongly posted with numerous machine guns, which beat off every Fr. advance. Early in May, however, with strong reinforcements the Fr. captured the position.

Crape, a thin transparent silk material, with an unglossed, rough, and wavy surface. It is manufactured by twisting the threads before weaving, without removing the natural gum of the silk, and then either boiling or dressing with a viscous gummy solution, by which the threads are partially untwisted and the characteristic appearance obtained. It is usually dyed black and used for mourning dresses.

Craponne, a tn., France, situated in Haute-Loire, 19 m. N. of Le Puy, and 27 m. from St. Etienne. Pop. (commune) about 3500.

Crashaw, Richard (d. c. 1650), an English poet and priest, *b.* in London, the son of a noted divine; educated at the Charterhouse, Pembroke Hall, and Peterhouse, becoming a fellow of the last in 1637. In 1644 he was ejected from the university by the parliamentarians for refusing to take the Covenant, and, going to France, became a Roman Catholic. In 1646 he gained, through the poet Cowley, the patronage of Cardinal Palotta, who found him a post at Rome. Later he became a canon in the church of Loretto. His poems, of which the religious ones are the best, are of the metaphysical school, and include *Steps to the Temple*, and *Sacred Poems*, besides *Epigrammata Sacra*, Latin poems published in 1634.

Crassulaceæ, a natural order of dicotyledons, consists of succulent plants, herbaceous or shrubby, annual or perennial, which grow in hot, dry, exposed places in the more temperate parts of the Old World. *Sempervivum* contains the species *S. tectorum*, the house-leek.

Crassus, Lucius Licinius (140-91 B.C.), a Rom. orator. He served as proconsul of Gaul, becoming famous both for wit and uprightness. In 95 B.C. he was elected consul together with Quintus Scaevola, and the rigorous law they enacted, banishing all who had not the full rights of citizenship from Rome, was one of the causes of the Social War. In 92, as censor, he closed all the schools of the rhetoricians. Cicero, in *De Oratore*, makes him his own mouth-piece.

Crassus, Marcus Licinius (c. 108-53 B.C.), a Roman triumvir, general, and

statesman, *b.* in Rome of a distinguished family, and early known for his great wealth, being surnamed 'The Rich.' He was forced to go into exile in Spain during the dictatorship of Marius and Cinna, but returned to join Sylla, who gave him a command in his army. In 74 B.C. he was chosen prætor, and while in this position took the command against Spartacus, the leader of the revolt of the gladiators of Capua. In a battle near Rhegium he completely defeated the rebels, Spartacus and a very large number of his men being killed. On his return he was rewarded with an ovation, and had a laurel crown instead of the usual myrtle wreath. In 71 he was elected consul together with Pompey, and used every means to gain popular favour, entertaining the whole populace at a great feast and distributing free corn. He narrowly escaped conviction at this time of complicity in the Catiline conspiracy. A few years later he joined with Pompey and Cæsar to form the first triumvirate, which ruined the power of the senate, and of which he proved himself an important member. In 56 he and Pompey were again elected as consuls, and obtained command of the army in Syria for five years, where he hoped to amass a large fortune. He determined to invade Parthia, and in 54 crossed the Euphrates, but after taking one town, returned to winter in Syria. The next year he invaded Mesopotamia, and was defeated with great loss by the Parthian general Surenas at Carrhæ. His troops mutinied and compelled him to meet Surenas in a conference, at which he was treacherously killed. He was famous for his avarice, industry and love of speculation, and was a large slave-dealer.

Cratægus, a genus of Rosacææ, consisting of about 100 hardy trees and bushes, the different species of which are cultivated for the sake of their ornamental appearance. *C. oxyacantha* is the hawthorn or may, of which *C. monogyna*, the white thorn, is a variety; both are common to Britain.

Cratæva, a genus of tropical plants. *C. gymandra*, the garlic pear, is an evil-smelling native of bushy places and thickets near the seaside in Jamaica; *C. tapia*, the tapia or common garlic pear, is a tree about 20 ft. high, and the fruit conveys the odour of garlic to animals feeding on it; *C. mannelos*, the bilva or mahura, is a small tree with a nutritious and aperient fruit of delicious taste.

Crater, see VOLCANOES.

Crater, a constellation of the Southern hemisphere below Hydra and just above Leo. None of its

three chief stars is of great magnitude.

Craterus (d. 321 B.C.), a trusted general, friend, and the mentor of Alexander the Great. C. did not fear to rebuke Alexander for his faults nor to lay before him the complaints of his soldiers. He commanded the cavalry during the expedition to India and led the veteran army back to Macedonia. Alexander appointed him to succeed Antipater, whose daughter he married, as regent of Macedonia, but on Alexander's death C. and Antipater together governed Macedonia, Greece, and Illyria. He helped to defeat the Greeks in the Samian War and was killed in combat with Eumenes his old companion in arms in Antipater's war with Perdiccas in Cappadocia.

Crates, a Greek comedian of Athens who died 424 B.C. His work marks an epoch in the development of the Attic comedy; he abandoned political allusion and the lampooning of individuals and wrote comedies of a more general character.

Crathie, a par. in Aberdeenshire, Scotland, among the Grampian mts. In it is Balmoral Castle, the Highland residence of His Majesty King George V.

Cratinus (c. 519-422 B.C.), a Greek comic poet, probably b. at Athens, the son of Callimedes. He was a writer of the old comedy and the rival of Aristophanes, over whom he gained several victories, and through whom our knowledge of C. is mostly gained. He seems not to have begun writing till late in life, and to have lived to a very advanced age. He is credited with various improvements in the arrangement of the chorus and of Gk. comedy generally, and is said to have been the first to make comedy an instrument of personal satire. He himself used it as a vehicle for audacious sarcasm, frequently directed against Pericles. The names of forty comedies by him have come down to us, of which nine appear to have gained prizes. Among these the chief is *The Wine Flask*, which in 423 gained the first prize, the *Connus* of Ameipsias coming second, and the *Clouds* of Aristophanes third.

Cratippus, a Peripatetic philosopher of Mitylene in the first century B.C., chiefly known through allusions in the works of Cicero, his pupil and friend. Plutarch says that he conversed with Pompey on his retreat from Pharsalia. About 48 B.C. he opened a school of philosophy at Athens, which was attended by Marcus, the son of Cicero, and by M. Brutus.

Crau, Desert of, situated in the Bouches-de-Rhône. It forms part of

the alluvial and malarial delta of the R. Rhone.

Craven, Mrs. Augustus (1820-91), daughter of Comte Auguste Marie de Ferronays and wife of Augustus C., diplomatist. Her *Récit d'une Sœur* (English edition, *A Sister's Story*) is the story, told with great charm, of the sorrows of her family while in Rome and Naples. The book, which was 'crowned' by the Académie Française, made so great an impression in France and in England that nine editions were published in a few months. Her other works include *Le Travail d'une Ame*, *La Jeunesse de Fanny Kemble*, *Elaine*, and *Lina*.

Crawford, Francis Marion (1854-1909), an American novelist, son of Thomas C. the sculptor, and nephew of the General Marion who took part in the American War of Independence. He was b. at Bagni-di-Lucca in Tuscany, and spent the first eleven years of his life in Rome. He was educated at Concord, New Hampshire, at Trinity College, Cambridge, at Karlsruhe and Heidelberg. Returning to Rome at the age of twenty-two he studied the Oriental languages, and in 1873 undertook Press work at Allahabad in connection with the *Indian Herald*. Falling ill, he went to live in New York with his uncle, Samuel Ward, who was to become the hero of the novel *Dr. Claudius*. Later he travelled in America and Turkey. His first novel, *Dr. Isaacs*, appeared in 1882, and following it came *Dr. Claudius*, *A Roman Singer*, *An American Politician*, *Zoroaster*, *Saracinesca*, *Marzio's Crucifix*, *With the Immortals*, *The Ralstons*, *Casa Braccio*, *A Rose of Yesterday*, *Don Orsino*, *Sant Ilario*, etc. He wrote also a play, *Francesca da Rimini*, produced in Paris, 1902, and a historical work, *Ave Roma Immortalis*. Marion C. joined the Roman Catholic Church.

Crawford, Robert (1700-33), Scottish poet, celebrated as the author of *The Bush aboon Traquair*, *Tweedside*, and other songs. He contributed lyrics to Allan Ramsay's *Tea-Table Miscellany*. Burns speaks admiringly of some of his work. He was the son of Patrick C., an Edinburgh merchant, and was drowned returning from France. Many of his songs are published in the *Orpheus Caledonis*. See Stenhouse's *Notes to Johnson's Musical Museum* and Crockett's *In Praise of Tweed*.

Crawford, Thomas (1814-57), an American sculptor, b. in New York City. In 1834 he settled in Rome and studied under Thorwaldsen. He established his reputation by a statue of Orpheus for Boston in 1839. He

executed also statues of Washington and Beethoven; a figure of Liberty; a bas-relief, 'The Progress of American Civilisation,' etc. He became blind in 1864 and *d.* in London.

Crawford, William Harris (1772-1834), an American statesman, *b.* in Virginia. He studied law while supporting himself by teaching, was admitted to the Bar in 1798 and practised law in Lexington, Georgia. Commissioned by the legislature of Georgia he, together with H. Marbury, prepared the first digest of the laws of that state. He was elected state senator in 1802 and United States senator in 1807, and became a leader of the Democratic party. He was Minister to France, 1813-15; Secretary of War, 1815-16; of the Treasury, 1816-25. His political career came to an end with his unsuccessful candidature for the presidency, 1824, but though paralysed he continued to work, becoming a judge in Georgia.

Crawford and Balcarres, Earls of, the title of the Scottish family of Lindsay. The first of this name to settle in Scotland seems to have been *Walter de Lindsay*, an Anglo-Norman baron of the reign of David I. Becoming rapidly influential, and spreading from their original homes at Ercildoun, Roxburghshire, and Crawford in Clydesdale, to Haddington, Forfar, Fife, etc., the Lindsays figured conspicuously in the history of Scotland. Their name occurs frequently in the accounts of the feuds between the Scottish nobles; the doings of 'the Lindsays light and gay' are commemorated in the ballad of the Battle of Otterbourn, and Froissart refers to the adventures of *Sir John Lindsay* in the same battle. Another renowned member of the family was *Sir David Lindsay* of Glenesk, who was created Earl of Crawford in 1397. He married Princess Elizabeth, daughter of Robert II., and is the hero of the celebrated tournament against Lord Welles described in Wyntoun's *Cronykyl*. This redoubtable and gallant warrior helped to his feet his vanquished opponent, whom he was at liberty to slay, and presented him to the queen. *David*, the third earl, was killed fighting on the side of the Douglasses against the king in 1444. *Alexander* (*d.* 1454) the fourth earl, was famed for his violent and ferocious character, in consequence of which he was surnamed the 'Tiger Earl'; he was also known as 'Earl Beardie.' He became hereditary sheriff of Aberdeen, a dignity of which he was afterwards deprived by James II.; and his estates were forfeited for an attempt, in concert with other Scottish nobles, to dethrone the king. After a long defi-

ance he at last made submission to James who, to satisfy his oath to 'make the highest stone of his (Lindsay's) castle at Finhaven the lowest,' threw a loose stone from one of the battlements. *David*, the fifth earl, became very powerful and was created Duke of Montrose in 1488 for his support of James III. against the rebellious barons. The title of duke had never before been conferred upon a Scot not of royal birth. He was besides hereditary sheriff of Angus, keeper of Berwick, high admiral, master of the household, lord chamberlain, joint high justiciary, and was employed on important embassies to England. Wounded and taken prisoner at the battle of Sauchieburn, he was in the next reign deprived of all his offices for his loyalty to James III. but ultimately pardoned. *Alexander*, the ninth earl, won by his crimes and misdeeds the title of the 'Wicked Master of Crawford,' and forfeited his title which passed to David Lindsay of Edzell, but David dying without issue, the son of the 'wicked' earl succeeded to the title in 1558. In the Reformation struggles the elder branch of the Lindsays took the Catholic side, and their implication in these contests and as Royalists in the great civil wars of Mary and James VI. brought about their ruin and the succession to the earldom of the Byres branch of the family. *John*, sixth Lord Lindsay of the Byres, was a Protestant and a man of iron character, who helped to compel Mary to resign her crown. His grandson, *John*, was high treasurer of Scotland, and his great-grandson *William*, was president of the parliament after the Revolution of 1688, and leader of the party who overthrew the episcopacy. The fourteenth, fifteenth, and sixteenth earls were brothers; *George* was assassinated as colonel in a Dutch regiment, *Alexander* died insane, and the Royalist soldier, *Ludovic*, died in exile. *John*, the twentieth earl, was educated at a military academy near Paris and served with the imperial army under Prince Eugène, then in Russia and Turkey. In 1747 he was appointed to the command of the Scots Greys, became lieutenant-general, and fought with distinction at Dettingen and Fontenoy. He was much beloved for his bravery, generosity, and amiability. On his death his cousin *George* became earl. The earldom reverted to the Earls of Balcarres on the death, in 1808, of the twenty-second earl. The title was not assumed by them, however, until 1848, when James, the seventh Earl of Balcarres, established his claim to it before the House of Lords. The

Earls of Balcarres descended from the ninth Earl of Crawford, Sir David Lindsay. Lady Anne Lindsay, author of *Auld Robin Gray*, was a member of this house. *Alexander William*, twenty-fifth Earl of Crawford and eighth Earl of Balcarres (1812-80), was well known as a writer on religious art and on philosophy, etc. His published works include *Lives of the Lindseys*, *Letters from the Holy Land*, *Sketches of the History of Christian Art*, *Etruscan Inscriptions Analysed*, *The Theory of English Hexameters*, etc. He was also the founder of a magnificent private library at Haigh Hall, Lanarkshire, in which the literatures of all nations were represented. He died in Florence and was buried in the family vault at Dun Echt, from which his body was mysteriously removed, to be found again in 1882 in a wood not far away from the mausoleum. He was succeeded by *James Ludovic*, his son, who became twenty-sixth earl. His son, *David Alexander Edward*, succeeded to the title in 1913. He is a trustee of the National Gallery, the National Portrait Gallery, and the British Museum, and was for many years Unionist Whip in the House of Commons, where he sat for Chorley divn. 1895-1913; was Pres. B. of Agric. and Fisheries 1916, Lord Privy Seal 1916-19, Chan. of the Duchy 1919-21, First Com. of Works 1921, Min. of Transport (in Cabinet) 1922.

Crawfordsville, co. seat of Montgomery co., Indiana, U.S.A., situated on Sugar Creek and on the Chicago, Indianapolis, and Louisville Railway. It exports 100,000 pigs annually and has important manufactures. Wabash College for men is here. Pop. 10,355.

Crawford, Thomas (c. 1530-1603), a Scottish soldier, who was taken prisoner at the battle of Pinkie, 1547, and afterwards helped in bringing the murderers of Darnley to trial. He took Dumbarton Castle in 1571, and forced Edinburgh Castle into surrender, 1573.

Craey, Caspar de (1582-1669), a Flemish painter. His chief works were altar-pieces for various towns in the Netherlands, and include: 'Christ appearing to Magdalen,' in the church of Notre Dame at Brussels; 'The Assumption,' in Ghent Cathedral; and 'The Resurrection,' in the church of the Jesuits.

Crayfish, the name given to several species of decapod crustaceans which are very closely allied to the lobsters. All are fresh-water animals, and the only marine crustacean to which the term is ever applied is *Nephrops Norvegicus*, the Norwegian lobster, which is not a true C. but a lobster. Cs. are nocturnal in habit, omnivorous in diet, and they undergo a series

of moults before the perfect creature is formed.

Crayford, an urban dist. in Kent, on the R. Cray, was the scene of the victory of Hengist over the Britons. It manufs. carpets, and is also noted for calico printing. Pop. 11,926.

Cream, see BUTTER.

Cream of Tartar, or Potassium Hydrogen Tartrate ($C_4H_4O_6K$), a substance occurring in a crude form in the later stages of the fermentation of grape-juice. This product is known as 'argol,' and is found deposited on the sides of the cask in which the fermentation has taken place. It is dissolved in hot water, the solution is filtered and the pure C. of T. crystallised out. C. of T. is used in medicine as a purgative, and is often used as the acid element in baking powder.

Creameries. Until the middle of the nineteenth century, butter-making was carried out entirely by the farm on which the milk was produced. In Ireland, which has always been primarily an agricultural country, Sir Horace Plunkett inaugurated a co-operative movement among farmers which would enable them to market their produce on a more business-like and profitable basis. Sir Horace had gained first-hand knowledge of farming while ranching as a young man in the W. states, and the Irish Agricultural Organisation Society which he founded in 1894 became a great success; he was later, 1900, made Vice-President of the Department of Agricultural and Technical Instruction in Ireland. Although he experienced the utmost difficulty in establishing the first creamery in the country, to-day there are well over one thousand throughout Ireland. Farmers have now found that by this system distribution is more economically effected, and the public has been able to obtain good butter at a cheaper rate. The English Agricultural Organisation Society was based on the I.A.O.S. To-day comparatively little butter is made on British farms, and its price is always in advance of that of creamery butter. 'Clouted cream' (clotted, or scalded) is made chiefly in Devonshire, Somerset, and Cornwall. There are numerous Cs. in New Zealand and Canada. The average annual value of Canadian creamery butter is about 63 million dollars. N. Zealand Cs. have, however, the larger export trade.

In the U.S.A. creameries are most numerous in the corn belts, and respond to winter as well as summer dairying, whereas the cheese factories are established chiefly in the cooler parts of the dairying region of Wisconsin, and are useful mainly in absorbing the extra supply of sum-

mer milk. A cheese and butter factory combined was established in Orange County, New York, in 1851, but the first actual creamery dates from 1872 in Manchester, Iowa. In some of the great American creameries, machinery is established which can manufacture millions of pounds of butter every year. The *Dairy and Creamery Journal* was established in London in 1889.

Creanga, Joan (1837-89), a Rumanian prose writer of great renown. His works are considered to be among the glories of the literature of that nation. His stories are written in popular language and are based on the old folk-tales. His writings appeared in 1890 under the name of *Povesti* (Tales), and in 1892 appeared his *Amintiri din Copilarie si Anecdote*. His collected works came out in 1896 in six volumes.

Creasy, Sir Edward Shepherd (1812-78), an historian, b. at Bexley in Kent, and educated at Eton and King's College, Cambridge. He was called to the Bar in 1837, and served as assistant-judge at the Westminster Sessions Court. In 1840 he was appointed professor of history at London University, and in 1860 Chief Justice of Ceylon. His chief works are: *The Rise and Progress of the British Constitution*, 1834; *The Fifteen Decisive Battles of the World*, 1851; *Imperial and Colonial Constitutions of the Britannic Empire*; *A History of the Ottoman Turks*; and *Invasions of England*.

Creation. For a very long while a deep controversy raged between theologians and scientists as to the origin of the world and of mankind. Genesis, it was held, pointed to a creation of the world in six days by the divine command; science, on the other hand, pointed out that the world and life gradually evolved under natural laws. But when the great evidences of geology and biology were recognised, it was seen that the view taken by scientists did not deny the special origin of life or matter, and it was seen that the laws of nature could easily be the laws of God. A further development towards healing the breach between the two views was taken when 'day' was understood as meaning a period. This substitution, biblical scholars affirmed, was easily allowable when the original Hebrew was studied. Then for a while theologians who were also scientists endeavoured to harmonise the views expressed in Genesis and by scientists, and many attempts were made to fit in these periods with the order of formation shown in geology and the succession of life as shown in palæontology. Prominent among these

attempts were the theories laid down by Chalmers, Smith, Miller, and Kurtz. A well-known attempt at thus harmonising the two divergent views was that made by Gladstone, to which Huxley replied.

So the struggle might have gone on indefinitely, as indeed it still does in certain quarters, for all evidence certainly points to a gradual development of matter and life, while Genesis certainly points to a specific C. The comparatively young science of biblical criticism, however, shows that there is no need to attempt this harmonising. It is interesting here to observe that most of the substance of the view of C. as given in Genesis is to be found in other and older cosmogonies. That of the Etruscans is very similar to the Bible story, while the Persian points to six creative periods of a thousand years each. So it is pointed out that the material in Genesis is incorporated from the others, and inspired and made the vehicle of revelation. And it is on this word 'revelation' that the present view of the relation between science and Genesis hangs. It is a fundamental fact of literary criticism that any interpretation of a work must be governed by the *motif* of the whole. Since the Bible is a work of revelation it includes no matter which men can find for themselves by the exercise of the power of reasoning, otherwise it would not be a revelation. In fact it can be further stated that the Bible, being written in the infancy of the world, had to address itself to the child mind of the world, and its literary form and colour therefore suggest this. And since the child spirit is universal still, when the idea of God is the subject of reason, its purpose still remains the same, to reveal God as the creator of the universe, and therefore it is seen that the view in Genesis does not contradict nor affirm the scientific view of C. They are separate views, and the apparent contradictions between them are of no importance. See COSMOGONY, ADAM, DARWINIAN THEORY, EVOLUTION, GEOLOGY, MAN, and the articles on various religions.

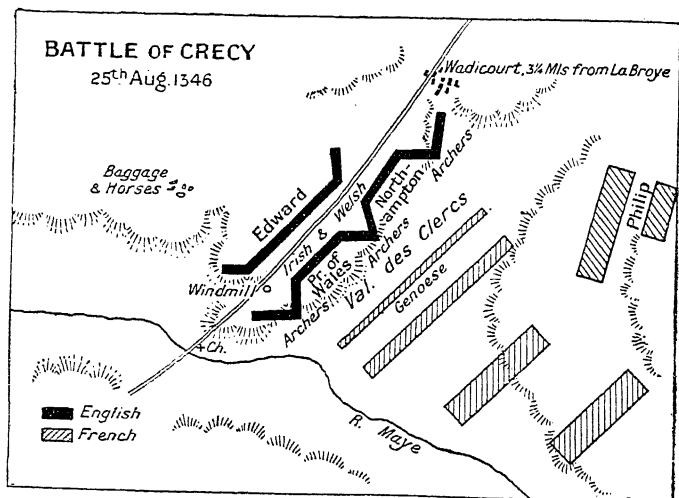
Crébillon, Claude Prosper Jolyot de (1707-77) a Fr. novelist and dramatist, b. at Paris, the son of Prosper Jolyot de C.; educated at the Jesuit College of Louis le Grand. He began by writing for the stage, but later took up fiction. In 1748 he married Lady Stafford, an Englishwoman. In 1755 he became censor. He seems to have disappeared some time before his death. His novels, which include *Le Sopha*, 1745 (Eng. translation, 1781), for the indecency of which he was banished from Paris;

The Wanderings of the Heart and Mind, 1736; and *Letters from the Marchioness de M—*, 1732 (Eng. translation, 1737), are clever but licentious. They were collected in 1779.

Crébillon, Prosper Jolyot de (1674–1762), a Fr. dramatist, b. at Dijon; intended for the law, but persisted in writing, and at an early age produced the tragedy of *Idomeneus*, which was very successful. He continued to issue tragedies on classical subjects in rapid succession, *Atræus*, *Rhadamistus*, popularly supposed to be his masterpiece, and *Electra* being very well received, while *Xerxes*, *Semiramus* and *Pyrrhus* met with but little suc-

Abbeyville, noted for the battle of 1346, in which Edward III. defeated Philip VI. of France. Pop. 1390.

Credence, the name given to the small table used in a church, which stands within the chancel rails, beside the altar. It is used to stand the elements for communion on and also all the vessels appertaining to the administration of the sacrament. In the Book of Common Prayer the rubric instructs the priest to 'place upon the table so much Bread and Wine as he shall think sufficient.' Up to this moment the elements have rested on the C. table. The C. table was given final sanction as a 'Legal Ornament' by the queen in council



cess. In 1711 he lost his wife, and after her death lived in retirement for some years, much of the time in considerable distress from poverty. Later, however, his previous work was recognised by a place in the Fr. Academy, and the position of police censor, and his comfortable circumstances allowed him to recommence writing. In 1749 *Catiline* appeared, and was produced under court patronage and with the assistance of the king. At first it was received exceedingly well, but evidently failed on closer study to come up to the public expectation. *Le Triumvirat*, 1755, was also only moderately successful. His last play, on Cromwell, was never completed.

Crécy, or Cressy, a vil. of France, in the dept. of Somme, 12 m. N.E. of

in the year 1857. The term was also formerly used in social life to designate a side table on which were placed the dishes before being served at the general table. At this side table the different foods were tasted as a precaution against poison. It was employed in Italy, France, and Germany about the fifteenth century.

Credentials: The instruments which an ambassador, envoy, or other diplomatic agent receives from his own government authorising him to appear in his diplomatic character and defining his powers. The C. are usually in the form of a closed letter addressed to the sovereign of the state to which the officer is accredited. A diplomatic officer will not be received in any other character than that which is given him by his C.

For this reason he generally imparts their contents before being received by the sovereign or head of the government to which he is accredited.

Credi, Lorenzo di (1453-c. 1535), an Italian painter of the Tuscan school, b. at Florence, and a fellow-pupil with Leonardo da Vinci under Andrea Verocchio. His style and choice of subject remained uninfluenced by the Renaissance through which he lived, and he actually burnt some of his pictures in the famous bonfire under the influence of Savonarola. He was not exceptionally gifted, but was extremely persevering, and showed considerable feeling for beauty and elaborate finish. He excelled in Madonnas and Holy Families, and was particularly fond of painting children. His best works include 'The Nativity' in the academy at Florence; 'The Madonna and Child' in the Louvre, Paris, which Vasari considered his masterpiece; 'The Madonna with Saints' in Pistoja Cathedral; 'The Baptism of Christ' in the Church of S. Domenico at Fiesole; 'The Virgin' in the National Gallery, London; and 'The Holy Family' at Edinburgh. Others are in the Berlin Museum and the Uffizi at Florence. All show the influence of da Vinci very strongly. See E. J. Poynter's *Classic and Italian Painting*, and Vasari's *Lives of the Painters*.

Credit, in a commercial sense, connotes the undertaking on the part of one party to a contract to pay money at a future time to the other party to the contract who gives valuable consideration for that undertaking. Both modes are used in conjunction with each other in commercial circles by means of the custom of giving bills of exchange drawn on third parties in payment of goods sold, e.g. by one merchant to another for exportation. The merchant taking the bill of exchange does not wait for payment to fall due on it, but gets it discounted at a bank. Thus, having given C. to one person in goods, he obtains C. from another in money. Commerce could not be carried on without such a system of C., and the extensive part which C. plays in the circulation of capital or the production and exchange of wealth is one which will be found discussed in all the textbooks on political economy. The precise use of C. as an agent in the production of wealth is that it gives circulation to capital (*q.v.*) and renders it available wherever it can be most profitably employed.

Credit, Letter of, an order, open or sealed, given by bankers or others at one place, to enable a person to receive money from their agents at another place. The person who ob-

tains a L. of C. may go to a particular place and need only carry with him a sum sufficient to defray his expenses. The L. of C. gives him some of the advantages of a banking account when he reaches his destination, as he may avail himself of it for part only of the sum named in it. A L. of C. is not transferable. A L. of C. is said to be 'special' when addressed to a particular individual by name, requesting him to advance money to the bearer of the L. of C. One of a number of notes or Ls. of C. each for the same sum given by bankers to their foreign correspondents to pay money to persons about to travel abroad is called a 'Circular Note.'

Crédit Foncier, an institution founded in France by the economist, Wolowski, and created under government patronage by a decree issued in 1852, to enable landowners and owners of house property to obtain money on mortgage of real securities at a low rate of interest, the loans to be repayable by annuities including redemption of capital. The C. F. is really the name adopted subsequently, on the amalgamation of the three original mortgage banks of Paris, Nevers, and Marseilles. Its operations and area of activity have been frequently extended since its formation, and in 1860 it was empowered to make advances to municipalities and departments for public works and improvements. In 1861 it assisted the foundation of the Crédit Agricole for advances to agriculture, loading its own statutory inability to make such advances by a system of discounts and re-discounts. The liquidation of the Crédit Agricole in 1876, as a consequence of its huge loans to the Egyptian government on treasury bills deposited with the C. F., involved the C. F. in difficulties, and resulted in the eventual absorption by it of the Crédit Agricole. The control of the government over the C. F. is exercised by the appointment of the governor and two deputy-governors, and by the rule that the approval of the governor is required to validate the decisions of the directors. The C. F. possesses under its charter, which has been extended for a period of ninety-nine years from 1831, the right to issue bonds at a fixed rate of interest repayable in fifty or sixty years, and, where specially authorised, carrying a right to draw for prizes.

Crédit Mobilier: (1) An institution formed simultaneously with the Crédit Foncier in 1852 in France for making advances on the security of personal or movable (*mobilier*) estate. The C. M. of London, which was

formed in 1864, was ultimately absorbed in the *Crédit Foncier* of London. (2) The C. M. of America was a construction company which, having obtained the contract to construct the Union Pacific Railroad, caused one of the gravest scandals in the history of American politics, by the nature of its financial operations after the Railroad Company's stockholders had acquired the controlling interest in its bonds. The object of the moving spirits of the Railroad Company was by overpaying the C. M. for the work of constructing the railway, ultimately to obtain control over the bonds lent to it by the government. Enormous profits were made, and six years after the completion of the railway, Congress appointed two committees to investigate its transactions. The result of their inquiries revealed the fact that large blocks of shares had been corruptly given to numerous senators and congressmen.

Creditor, or **Kirkton**, a bor. and market tn. of England, in the co. of Devonshire. It is situated on the R. Creedy, 8 m. N.W. of Exeter, lying in a narrow valley between two steep hills, and is divided into an old and new town. It was the birthplace of Winfrid, or St. Boniface, in 680, and from 910 to 1049 was the seat of a bishopric, afterwards transferred to Exeter. Cromwell captured it in 1645; in 1743, and again in 1769, much of the town was destroyed by fire, consequently it is fairly modern in appearance. Agriculture is the principal industry, but there are also tanneries. Shoes and cider are also manufactured in Creditor. Pop. 3501.

Crech, Thomas (1659-1701), an English poet and translator, b. at Blandford, Dorset. He translated into English verse Lucretius (1682), Horace, and Theocritus (1684). He is best known for his translation of Horace.

Crech, William (1745-1815), a publisher, and lord provost of Edinburgh. He is best remembered as being the publisher of the works of Cullen, Gregory, Henry Mackenzie, and also for publishing the second edition of Robert Burns' poems. Burns thought highly of C. as a social companion, as expressed in his poem *Willie's Awa'*, but latterly C. forfeited Burns' esteem through his avarice and slackness in paying debts. C.'s shop and breakfast room were the meeting place of many celebrities of that day.

Creed (A.-S. *creda*, from Lat. *credo*, I believe, the first word of the Apostles' and Nicene Creeds), the authorised expressions of the faith of a church, generally used liturgically. The three great creeds of the church are very early in date, and

of only one of them is the origin at all clearly known. The *Apostles' Creed*, being the simplest and earliest, has the most complicated history. In the fourth century, Rufinus dates its origin from the apostles themselves, each of whom he declares to have had a share in the composition of it. This tradition, however, resting on so doubtful an authority, is generally disregarded. It is certain that some form of baptismal confession was required at a very early date, and the nucleus of this is found in Christ's command to baptise 'in the name of the Father, and of the Son, and of the Holy Ghost.' This formula was expanded into a short form, common to East and West, divided into the same three members as the present C., but lacking many details, such as the 'He descended into hell,' and 'The Communion of Saints,' which two clauses are first found in the Gallican formulæ of the fifth century. In the East, this common C. was much modified and expanded in various ways according to the heresy it was required to combat at the moment. In the West, the most important step in the development is the Roman symbol, which has been variously reconstructed with substantial agreement by various authorities. Before this, reference may be made to Irenæus, Tertullian, and Hippolytus for earlier forms of baptismal confession, all of which show the same type of construction. The present Apostles' Creed is a compound of Roman and Gallican forms deriving its authority from Catholic consent. The *Nicene Creed* is more definite in its history. Throughout the second and third centuries there had been keen controversies as to the nature of Christ, and in the fourth century Arius, the great heresiarch, denied that Christ was consubstantial and co-eternal with the Father. The controversy raged throughout the Church, and for long the adversaries of the faith had the upper hand (see *ARIUS*). Athanasius came forward as the defender of the faith, and when, in 325, an oecumenical council was called by Constantine to settle the question, he was the principal speaker. This council was convoked at Nicæa, and the discussion was almost entirely on the person of Christ. The Arians were quite in the minority, but there was a large moderate party, led by Eusebius of Cæsarea, who wished to describe Christ not as of the *same* substance as the Father (*ὁμοούσιος*), but as of *like* substance (*ὁμοιούσιος*). Supported by Constantine, the orthodox prevailed, and the first form of the Nicene Creed was promulgated. At

the Council of Constantinople (381) some additions were made, the divinity of the Holy Ghost being stated. Except for one clause, the *filioque*, declaring the procession of the Holy Ghost to be 'from the Father and the Son,' the C. was now in the form in which we know it in the West. This clause was added in the fifth or sixth century, and was one of the main causes of the controversy between East and West which led to the Great Schism. The *Athanasian Creed* was formerly believed to date from the fifth century, for its connection with St. Athanasius was never authenticated, and though a determined effort was made in the middle of last century to attribute it to the eighth or ninth century, the earlier position is more probably correct. The C. is an elaborate statement of the doctrine of the Trinity. Since the Council of Trent, the *Professio Fidei Tridentina* issued in 1564 (amended 1870) commonly known as the *Creed of Pope Pius*, has practically assumed the rank of a C. in the Roman Church. See Swainson's *Nicene and Apostles' Creeds*; Harnack's *Apostolisches Symbolum*; Schaff's *Creeds of Christendom*.

Creedmoor, a dist. of New York City, U.S.A. It stands on Long Island, and is situated in the borough of Queen's in the county of the same name.

Creek Indians, or Muskogean, a tribe of N. American Indians whose territory originally extended from the Gulf States, E. of the Mississippi up to the Tennessee R. in the N. At one time they formed a powerful political body, but the race is almost extinct. The survivors number about 35,000 now and have settled on reservations in Indian territory.

Creek Town, a tn. in the British colony of S. Nigeria, on the Old Calabar R., in W. Africa.

Creepers, a name often applied to any small bird which seeks its food by running on the ground, but more properly applied only to the family Certhiidae, order Passeriformes. They have long, slender bills, and dull plumage. The tail is somewhat long and square, and the feet slender.

Creepers, see CLIMBING PLANTS.

Crees (Cristineaux or Knistineaux), an important tribe of N. American Indians of Algonquian stock. They number about 8000, living chiefly in Manitoba and Saskatchewan, between the Red R. and Lake Winnipeg on the E., and Saskatchewan R. on the W. Their first home was near Rainy Lake and Lake Winnipeg, but they spread further, this being largely due to the inroads of the Iroquois (seventeenth century). They are divided

into Plain C. (of the Saskatchewan prairies), and Wood C. (of the forests of the Athabaskan region). The name meant 'killers,' but they are now quite peaceable and barter furs with the Hudson's Bay Company. See Catlin, *North American Indians*, 1844; Drake, *Biography and History of the Indians of North America*, 1848; *Handbook of American Indians*, 1907.

Creetown, a seaport in Kirkcudbrightshire, Scotland, at the head of Wigtown Bay, at the mouth of the R. Cree. It is noted for its granite quarries, and the people are mostly engaged in fishing. Pop. 757.

Crefeld, see KREFELD.

Creighton, Mandell (1843-1901), an English historian, b. at Carlisle. In 1882 he published the first two volumes of his *History of the Papacy*, and in consequence was appointed Dixie professor of ecclesiastical history at Cambridge in 1884. Three more volumes of this work appeared before 1894. Its historical judgment and widely accurate scholarship are universally acknowledged, yet it is so impartial that Roman Catholics and Protestants can both appreciate it. He founded the *English Historical Review* in 1886, and edited it for five years. The following are among his works: *Simon de Montfort*, 1876; *Tudors and the Reformation*, 1876; *Queen Elizabeth*, 1896; *Cardinal Wolsey*, 1888; *Historical Essays and Reviews*, 1902, and *Thoughts on Education*, 1902.

Creil, a tn. of France, in the dept. of Oise and arron. of Senlis, situated on the R. Oise, 22 m. S.E. of Beauvais. Heavy iron goods and machinery are manufactured, also earthenware, porcelain, and glass. There are large copper foundries. C. is an important railway junction. Pop. 10,560.

Crema, a tn. of Lombardy, Italy, situated in the prov. of Cremona, on the R. Serio, 27 m. N.W. of Cremona. There are manufactures of lace, silk goods, hats, and linen, and a trade in bell-casting, wax, honey, etc. Flax is largely grown. C. was founded by the Lombards, and possesses an old cathedral and a castle. Pop. 11,900.

Cremation, the reduction to ashes of human corpses. At the present day, when there are over one hundred crematoria in the United Kingdom, it is difficult to realise that less than thirty years ago popular sentiment was either so hostile or so apathetic to this mode of burial that not one crematorium existed in England, and very few abroad. On its religious side that sentiment is not past, and the Cremation Act, 1902, expressly exempts any minister from the obligation to perform a burial

service at or after the C. of remains. C. is by no means a modern practice, except in regard to the scientific process employed; it was the common custom among most of the natives of the ancient world, except Egypt, where embalming was in vogue, and China, where interment in the soil of that country was so involved with religious notions that it was and remains essential to send corpses to China wherever the death may have occurred. It is chiefly due to such Italian chemists and physicians as Polli and Brunetti that the whole question of C. began to be discussed in Europe in the middle of the nineteenth century. In England the matter was never really before the public until Sir Henry Thompson (author of *Modern Cremation: Its History and Practice to the Present Date*, 1901), in 1873, having conducted experiments with both regenerative and reverberating furnaces according to the Italian processes, demonstrated the possibility of resolving a corpse into gases with rapidity and efficacy. The result was the formation in 1874 of a society for the promotion of C., with Sir H. Thompson as its president. In 1878 the society bought a site at Woking, but, owing to the opposition of the Home Office, the society was obliged to abstain from any attempt at practising C. In 1884, however, the legality of C. was established in a rather curious manner. At the Cardiff Assizes in February of that year a man was indicted for attempting to burn the body of his child instead of burying it. Mr. Justice Stephen directed the jury that to burn a dead body instead of burying it was not an offence unless it was done so as to amount to a public nuisance. After this the society, having acquired further funds, announced its intention to perform C., and other crematoria were soon established. The society in its methods left but little room for cavil, and indeed the findings of the Select Committee appointed in 1893 to inquire into the state of the law as to burial, pointed to an infinitely greater laxity in the matter of certification on the part of the ordinary burial authorities, recommending the universal adoption of the methods of the C. society. It was not until 1902 that the Act of 2 Ed. VII. c. 8 was passed to legalise and regulate Cs. By this Act burial authorities, including local authorities, maintaining a cemetery under the Public Health (Interments) Act, 1879, may provide and maintain crematoria. No crematorium may be constructed nearer to any dwelling-house than 200 yds. without the consent of the

owner or occupier, nor within 50 yds. of the highway, nor in the consecrated part of the burial ground of any burial authority. Regulations were laid down by the Home Secretary in 1903, providing that no C. may take place until the death of the deceased has been duly registered, and the written authority of the medical referee appointed for the crematorium has been obtained. The two ordinary processes of C. are carbonisation in a reverberating furnace, the body being resolved into lime dust by the direct contact of fire, and the noxious effluvia consumed in a second or outer chamber, and that of the Siemens regenerative or hot-blast furnace, in which the combustible gases from the body itself meet the hot air sent into the chamber containing the body, this hot air or gas being generated by burning coke in another furnace.

Cremer, Sir William Randall (1838-1908), b. at Fareham, Hants, was first apprenticed in the shipbuilding trade, but afterwards became a carpenter, and founded the Amalgamated Society of Joiners. The Inter-Parliamentary Conferences on Peace and on Arbitration were founded by him, and he acted as secretary to the International Arbitration League for thirty-five years. He was awarded the Nobel gold medal and prize (amounting to about £8000), but he gave it to the League to promote its cause.

Crémieux, Hector Jonathan (1828-92), a French dramatic author. His operas and dramas were a great success, the chief of which are: *Orphée aux enfers*, 1858; *Le Savetier de la rue Quincampoix*, 1859; *Génévieve de Brabant*, 1868; *Le Petit Faust*, 1869; *La Veuve du Malabar*, 1873; *La Jolie Parfumeuse*, 1874; and *La Foire Saint-Laurent*, 1877.

Crémieux, Isaac Moïse, called Adolphe (1796-1880), a French lawyer and statesman, b. at Nîmes. At the *coup d'état* of 1851, he was arrested and imprisoned, but became Minister of Justice in the Government of National Defence, 1870. He was afterwards one of the ministers of the delegations of Tours and Bordeaux. He resigned in 1871, and was afterwards made senator for life of the national assembly. A selection of his speeches was published in 1869, and he helped to compile the *Code des Codes*, 1835.

Cremlitz, see KREMLITZ.

Cremona: (1) A prov. of Italy in Lombardy, stretching between Rs. Adda and Oglio. Mostly a fertile, cultivated region, W. of R. Po. Area about 690 sq. m. Produces silk and other fabrics, wheat, flax, maize, rice, and wine. Pop. 354,800 (1928). (2)

Cap. of above, on l. b. of R. Po, about 60 m. from Milan. Still surrounded by its old walls, it contains many interesting ancient buildings. The twelfth century Romanesque Lombard cathedral has frescoes by Pordenone and other masters. The main facade is of red and white marble. The Torazzo near by is the highest clock-tower in Italy, and commands a grand view of the Po valley (396 ft. high). Among the many churches are Sant' Agostino e Giacomo in Bradia (1309, with paintings by Perugino), San Sigismondo (1463), San Pietro al Po (1549), Santa Margherita by Guilio Campi (sixteenth century), Sant' Agata. Other interesting buildings are the thirteenth century town-hall, Palazzo de' Gonfaloniero, and Palazzo Reale. C. is noted for silk, sweets, preserves ('torrone'), and stringed instruments. Its violins had an immense reputation, the two Amati, Guarneri, and later Stradivarius (*d.* 1746), all being violin-makers. A memorial tablet still marks the house of Stradivarius. The anatomist Malpighi was also born at C. The C. school of painting flourished in the sixteenth and seventeenth centuries. Some of the chief Cremonese painters were Boccaccio, Boccaccino, Bembo, the three Campis, Melone, Sofonisba l'Anguisciola and her sisters. C. was colonised by the Romans, about 218 B.C., to command Cisalpine Gaul; in A.D. 70 it was destroyed by Vespasian, by the Goths in 540, by the Lombards in 605. It became important again in the tenth century, passing into Milan's possession in the fourteenth century. In 1535 under Spanish control; in 1814 it became Austrian, and in 1859 Italian. Pop. (1928) 65,300. See Holder-Egger, 'Die Annales Cremonenses' in *Neues Archiv der Gesellschaft für ältere Deutsche Geschichtskunde*, xx., 1900.

Cremona, Luigi (1830-1903), an Italian mathematician, *b.* at Pavia. In 1860 he was appointed professor of higher mathematics in Bologna University, and was called to the chair of higher mathematics in the university of Rome in the year 1873. He was Vice-President of the Senate in 1897, and Minister of Education in 1898. He wrote several works, the most noteworthy being *Le Figure reciproche nella Statica grafica*, 1879, and *Elementi di Geometria proiettiva*, 1873.

Cremona Gardens, situated on the l. b. of the Thames, near Battersea Bridge, served as a popular place of amusement during the middle of the nineteenth century. During the summer evenings entertainments were given, and fêtes were held to

provide funds for charitable purposes. They were closed in 1877.

Creoles (derived from Sp. *criar*, to create,) strictly the natives of the W. Indies, S. America, and S. U.S.A., descended from the original Fr. Sp., or Port., as distinguished from offspring of mixed race (mulattoes, quadroons, mestizoes), or non-Latin stock, and from negroes and aborigines. The name does not necessarily imply a coloured race, but the term is often wrongly used for negroes and others. See Cable, *The Creoles of Louisiana*, 1884.

Creon: (1) A king of Corinth who was burned to death in the fire which occurred when his daughter, Glauce, put on the garment sent to her by Medea because she had married Jason. (2) Son of Menœus and brother of Jocaste, the wife of Laius. He governed Thebes for a short time after the death of Laius, and again after the death of Eteocles and Polynices. He sentenced Antigone to death because she, against his wishes, buried the body of Polynices.

Crepuscularia (Lat. *crepusculum*, twilight), the name given by Latreille in his classification to his second family of lepidopterous insects. The species belong to the series *Heterocera* and are moths which fly at night-fall, *e.g.* the hawk-moths.

Crepuscular Rays (Lat. *crepusculum*, twilight), the appearance of rays which frequently appear when the sun is setting with clouds in the vicinity. The reflection of the light from the clouds and floating dust gives the appearance of beams of light all diverging from the sun.

Crépy, or **Crépy-en-Valois**, a tn. of France, in the dept. of Oise, and the arron. of Senlis, 12 m. S.E. of Compiègne. The remains of an old castle are here. There are manufactures of fine cotton materials and coarse linen. Pop. 5570.

Créqui, Ancient Fr. family, taking name from a village near Calais, and including: (1) *Charles* (1^{er}), *Marquis de C. de Blanchefort de Canaples* (c. 1567-1638), soldier and diplomat, Lieut.-Gen. of Dauphiny. In 1622, made Marshal of France. Fought in Italian campaigns, and was ambassador—Rome, 1633; Venice, 1634. Killed before Crema, Mar. 17, 1638. (2) *François C. de Blanchefort, Marquis de Marines* (c. 1624-1687), soldier, grandson of (1). Marshal of France, 1668. Seized territories of Duke of Lorraine, 1670. Refused service under Turenne, and was exiled. Surprised and beaten at Consarbruck (1675), lost Treves, taken prisoner. Returned to France, commanded army of Meuse and Moselle. In 1684 he took Luxem-

burg. (3) *Renée-Caroline de Froulay, Marquise de* (1714-1803), b. at château of Montfaucon, married Marquis Louis-Marie de C., 1737. Widowed 1741. Little and plain, but learned, attracted a literary circle, and influenced J. J. Rousseau. Formed friendship with Senac de Meilhan. Her letters are extant, but the *Mémoires* are a forgery.

Crescendo (Lat. *crescere*, to grow, increase). The term is used in music to denote a gradual and steady increase in volume of sound, *not* an increase in pace, though a C. effect is often obtained on a stringed instrument by increasing the pace of the bow.

Crescent, the new moon which shows a curving rim of light, ending in points or horns which point to the left of the observer. The term C. is also used when speaking of the Turkish flag, as a C. is seen displayed on that country's ensign. It is also used figuratively when referring to Turkish power, or to the Turkish empire. The Turks adopted the C. as their emblem in 1453 at the taking of Constantinople. A C. in heraldry is an honourable ordinary, being a mark of distinction for the second sons of families and their descendants. The name was also adopted for three orders of knighthood, viz.: (1) That founded by Charles I. of Naples in 1268; (2) that founded by René of Anjou in 1448; and (3) that founded by Sultan Selim III. in 1799, the first recipient of which was Lord Nelson in 1801. All three of these orders are now extinct.

Crescentia, a genus of plants in the order Bignoniaceae, is indigenous to tropical America. The shell is made into spoons, ladies, cups, basins, and bowls.

Crescentino, a commune in Italy in prov. of Novara, Piedmont, 13 m. from Turin. Pop. 5760.

Crescimberì, Giovanni Mario (1663-1728), an Italian poet and critic, joined the Jesuits' college in his native city of Macerata, and there composed his tragedy on the life of Darius and his metrical version of Lucan's *Pharsalia*. In 1679 he became doctor of laws, and in the following year returned to Rome, where he had previously studied under a Fr. priest. His *magnum opus*, *Istoria della volgar Poesia* (1698), is still a standard work on the history of Italian poetry, the *Commentary* (1702-11) being the most valuable of his other works. Yet his country remembers him chiefly for his opposition to the artificial criteria of what was good in literature, which Marini and his admirers had established.

Crespi, Daniele (1590-1630), Italian painter, worked in the studios of Gio-

vanni Crespi and Giulio Procaccini. Pavia and Milan, his birthplace, contain many of his paintings, and his finest work, a series of pictures illustrative of the life of St. Bruno hangs in the Carthusian monastery of Milan. His celebrated 'Stoning of St. Stephen' may be seen in Brera. Harmonious colouring and grouping, careful drawing, and a vigour of conception have earned for him a high niche among historical painters.

Crespi, Giovanni Battista (1537-1633), an Italian artist, known also as Il Cerano after his birthplace, was president of the Milanese Academy, instituted by Cardinal Borromeo, and attained to high distinction in his native city. A man of versatile gifts, C. was at once sculptor, painter, and architect. His pictures are remarkable for their pleasing colour blends and their evidence of a lofty imagination, though his figures are often graceless and grotesque.

Crespi, Giuseppe Maria (1665-1747), an Italian painter, surnamed 'Lo Spagnuolo' from his love of finery. He was employed by the Grand-Duke Ferdinand in the Pitti Palace. His method of colouring, consisting mainly of glazing, has caused the obliteration of many of his works. Besides being a history and portrait painter, he was a brilliant caricaturist and did a number of etchings (after Rembrandt and Salvator). His 'Massacre of the Innocents' is at Bologna. Other works are in the Dresden Gallery (series of 'the Seven Sacraments'), Vienna Gallery ('Sumæan Sibyl'), Florence, Leningrad, Munich, and elsewhere. His three sons were also painters.

Cress, the name given to various plants with acrid or pungent leaves. Nearly all of these belong to the order Cruciferae, but the Indian C., *Tropæolum majus*, is a species of Tropæolaceae, and is known usually as the common nasturtium. The true genus *Nasturtium*, however, contains cruciferous plants, and *N. officinale* is the water-cress of salads. Other British species are *Lepidium sativa*, the common or garden C., *Barbarea praecox*, the winter C., Belleisle or Normandy C., while the genus *Arabis* yields several rock-C., and *Thlaspi* three species known as penny-cress.

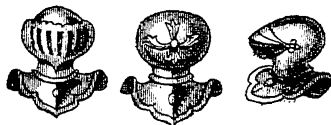
Cressy, see CRÉCY.

'**Cressy**,' an armoured cruiser in the Br. navy, which gave its name to a class of six vessels, laid down in 1898. They were steel built, with a horse-power of 21,000, a displacement of 12,000 tons, and a length of 440 ft. In the Great War the C. was a unit of the ill-fated Force 'C.' Whilst on patrol duty between England and Holland she was

torpedoed and sunk together with the *Hoque* and *Aboukir* on Sept. 22, 1914, just off the Dutch coast. This event established beyond doubt the power of the submarine, which had previously been under-estimated.

Crest, a tn. in S.E. France, dept. Drôme, and arron. of Die, 20 m. S.S.E. of Valence by rail. A centre of silk-worm breeding and silk-spinning, with manufs. of paper, woollens, cotton goods, leather, cement, and beetroot sugar. Pop. 5250.

Crest (Lat. *crista*, a plume or tuft), the 'comb' on the head of an animal, whence any tuft or the top of anything, e.g. of a helmet or a hill. (1) In heraldry, the figure or ornament which originally surmounted the helmet of a knight. The practice spread until the C. became an almost



CRESTS

indispensable part of a coat of arms, was used in armorial bearings, and as a seal. In spite of the popular misconception the C. is in no way necessary to a coat of arms, which is complete without it. When actually worn the C. was bound to the top of the helmet or coronet by means of a wreath. (2) C., or Creste, in architecture, an ornamental finish to the ridge of a wall or building, usually conventional foliage, originally in stone, although later it was frequently in metal work. To-day crestings often consist of plain or gilded cast-iron railings. Such forms of decoration were early borrowed from the East by Romanesque architects. It was common in Gothic, and is still general on the Continent. Exeter Cathedral has a leaden C. of *fleur-de-lis*.

Creston, the co. seat of Union co., Iowa, U.S.A. It lies 1312 ft. above the sea, and is the junction for two branches of Chicago, Burlington, and Quincy railways. Pop. 8615.

Creswick, a small tn. in the co. of Talbot, in Victoria, Australia. It lies on the Tullaroop Creek, 11 m. N. of Ballarat in the centre of a fruitful well-forested country. The neighbouring alluvial gold and quartz mines are the chief source of its prosperity. Pop. 3700.

Creswick, Thomas (1811-69), a landscape painter, began to draw and sketch as a schoolboy at Hazelwood, near Birmingham, and in 1828 went to London to study art. Though C.

preferred to give his canvases such fanciful names as the 'Shade of the Beech Trees,' 'A Greenwood Stream,' and 'A Shady Glen,' etc., he usually painted faithful representations of the rural scenery he had enjoyed in his native Yorkshire, in N. Wales, and Cornwall. From 1848 onward C. tried his hand at seascapes, the best of which are 'A Squally Day,' and 'Wind on Shore,' but he produced his most attractive pictures when he painted those calm and cheerful country scenes, which bring to the spectator a sense of peace and rest, an effect aided by the smooth placidity of the painting and the grey tones of the greens and blues.

Cretaceous System, so called because its best known and most characteristic rock consists of white chalk. The Cretaceous rocks in England lie to the E. and S.E. of the Jurassic rocks. They extend from the Yorkshire coast through E. Yorkshire, Lincolnshire, the E. Anglian counties, and so in a S.W. direction to Hampshire and the Isle of Wight, while they also extend eastwards through Surrey, Sussex, and Kent to the coast between the mouth of the Thames and Brighton. They are only found in patches in Scotland and Ireland, but they are considerably developed on the Continent, being found spread over large areas in France, Belgium, Holland, Denmark, Sweden, Germany, Poland, and Russia, while it is also largely developed in Southern Europe. They lie under younger formations, being more or less concealed, over a large part of this area, however. In England and France the main development is white chalk, while in the E., in Germany, etc., this is replaced by limestones, shales, sandstones, etc., while in Southern Europe there is a great development of massive marine limestone (hippurite). The system extends over America, Canada (where there are the chief oil-producing centres), and Greenland, Australia and New Zealand, while a large development occurs in the Deccan in India. For the sub-divisions of this system in order of formation see following page.

The lower strata of the C. S. consist of sand and clay. In the S. of England, where the Weald Clay is followed by the Lower Greensand, the beds are of fresh-water origin, whereas in Yorkshire they are of marine origin. Above these is a mass of clay known as Gault in the S.E., while in Norfolk, Lincolnshire, and Yorkshire, this is replaced by a thin deposit of lime known as Red Chalk. These are marine deposits, as also are the Upper Greensand and the Chloritic Marl (q.v.). Then lying over these

are the most extensive of the cretaceous rocks—the chalk, which retains the same general characters wherever it exists in England. It is usually a white earthy limestone with layers of flint running parallel to the bedding planes in the upper portions. Under the microscope it is found to consist of perfect or broken fossils. Fragments of shells occur plentifully,

mentioned, the chalk is composed largely of the remains of foraminifera, while sponges, sea-urchins, starfishes, and brachiopods were common. Bivalves, such as Hippurites, Linsi, etc., were very numerous, while Ammonites are the most characteristic fossils and were the most abundant. Among the fishes were various kinds of shark, while the majority of

CONTINENTAL
CRETACEOUS.

Danian
Senonian
Turonian

Cenomanian

Albian
Neocomian

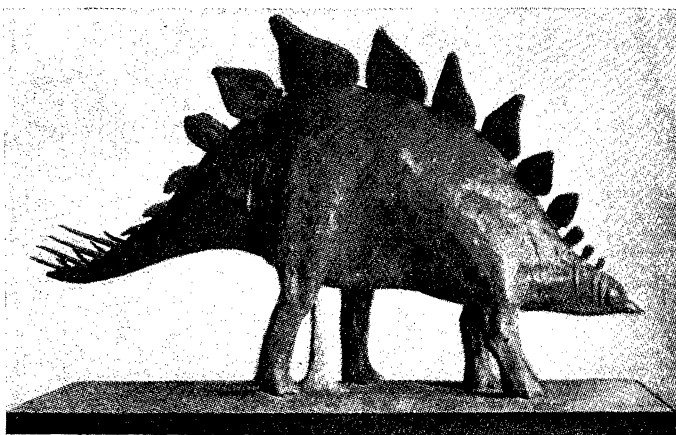
EQUIVALENT ENGLISH
STRATA.

(Wanting)	}	Upper Cretaceous
Upper Chalk		
Middle Chalk		
Lower Chalk		
Chloritic Marl	}	Lower Cretaceous
Upper Greensand		
Gault		
Lower Greensand	}	Lower Cretaceous
Wealden		

but it is mainly composed of the remains of foraminifera (*q.v.*).

Fossils of the Cretaceous System are similar to those of Jurassic times. Since the cretaceous strata of Britain

the genera of fishes existing to-day (*Teleostei*) were existing then. Further, huge land reptiles (*Dinosaurs*), winged reptiles (*Pterodactylus*), and serpent-like reptiles (*Mosasaurus*)



CRETACEOUS ARMoured DINOSAUR
(*Stegosaurus unguiculatus*)

are almost all of marine origin, the remains of plant life are chiefly found in the S., where the beds are of fresh-water origin, and consist chiefly of ferns and conifers. The Upper Cretaceous rocks of Germany, however, furnish plant remains of extinct species of maple, oak, walnut, beech, laurel, etc. Amongst animals the protozoa are abundant. As has been

were common then, and toothed birds, such as Ichthyornis and Hesperornis, were also existent in the Western Hemisphere in this epoch.

Conditions under which Cretaceous rocks deposited.—The Lower Cretaceous rocks were formed under similar conditions to the Upper Jurassic. At this time most of Britain and Ireland existed as dry land, while

a large river from the N. had its estuary laying over the S.E. of England. The delta deposits of that river formed the Wealden beds. Then the land sunk and marine conditions prevailed, while the Gault was laid down, although the area was not too remote for mud to be deposited from the rivers. Then as the depression continued, the coast receded until a little earthy deposit was added, and then the chalk was deposited. Similar conditions at present prevail in the Caribbean Sea, where sediment is being piled up which may form a rock similar to chalk.

Crete (Gk. Κρήτη, Lat. Creta, Turk. Kirit, It. Candia, New Gk. Κριτι), or Candia, a large island in the Mediterranean Sea, considered as the most southerly part of Europe. Its north-western extremity, Cape Grabusa, is 60 m. S. of Cape Malea in Greece, and its north-eastern extremity, Cape Sidero, is 110 m. from Cape Krio in Asia Minor. C. is situated between 34° 50' and 35° 43' N. lat., and between 23° 30' and 26° 20' E. long. Its length from E. to W. is about 155 m., its width varies from 7 to 35 m. Its area is a little under 3330 sq. m. The coasts are generally steep and unfavourable for harbourage, though the N. coast is greatly indented. Some of the principal bays, from W. to E., are those of Kisamos, Canea, Suda, Retimo, Candia, Malea, Mirabello, and Sitia. On the N. are likewise the capes of Grabusa (N.W.), Spada, Drepano, Stauros, Panagia, and Sidero (N.E.). The chief capes on the S. side, which is less indented, are Krio (S.W.) and Lithinos. The only large bay is that of Messara. The largest island in the neighbourhood is Gavdo (ancient Claudia), about 40 m. S.W. of Cape Lithinos. The surface is extremely mountainous, especially in the W., where the massive range of the White (or Madaras) Mts. culminates in Mt. Theodoros, at a height of close on 8000 ft. In the centre of the island is a lower group, but it attains to a greater height in the almost isolated Mt. Psiloriti (ancient Ida), over 8000 ft. in height, the highest peak in the island. Further E. are the Lasithi Mts. (chief peak Mt. Christos), and the Sitia Mts. with Mt. Kavonsi. There are a few plains of which the largest is that of Messara, extending from the coast to the Lasithi range over an expanse of nearly 400 sq. m. Next to this comes the plain of Canea in the N., through which flows the R. Platonos (ancient Iardanos). From the nature of the country it is evident that the streams are mere mountain torrents. The mountain-

ous country is cut up by deep and precipitous ravines in which snow remains throughout the year. Among the mountains are fertile plateaus, which furnish excellent pasturage during the warm season of the year. The climate is mild and salubrious, and is one of the best in Europe. The air is pure and fresh as a general rule, but the fierce southerly wind, known as the *sirocco*, sometimes raises the temperature to 100° F. Earthquakes are experienced at times, and on Feb. 14, 1930, serious damage was caused by a severe shock, which was felt in Athens, Cairo, and over the Aegean Sea. Many buildings in Candia were shaken to their foundations, a number of people were injured, and ten villages were destroyed.

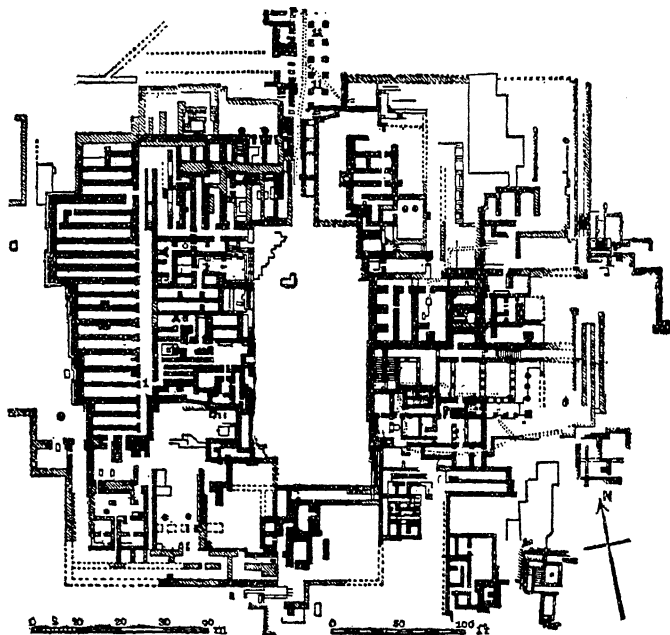
Flora and Fauna.—The forests with which C. was once covered have now disappeared almost entirely, but the cypress is still found extensively among the hills, while the lower slopes of the mountains and many of the valleys are covered with olive woods. Though in many parts the soil prevents the growth of vegetation, in others it is very luxuriant. Oranges and lemons are extensively cultivated and exported, while the carob-tree yields the carob-beans. Sheep are bred in many parts of the island, and the native breed of mules is very famous. The most important wild animal to mention is the Cretan ibex or goat. Large numbers of these animals are still found in the higher regions.

Minerals.—The volcanic origin of the island would lead one to the opinion that it is rich in minerals, but nothing much has yet been done to verify this supposition. Gypsum, slate and iron have been found, and it is probable that considerable quantities of lead, manganese, sulphur, and other minerals also exist.

Population, religion, and chief cities.—The 1928 census gave the pop. as 386,427, of whom 26,604 resided in Canea, the capital. The vast majority of the inhabitants of Crete are Christians, and there is a steadily declining number of Mohammedans, to whom the Gks. are hostile. The Jewish pop. is numbered only in hundreds. The entire pop. shows an increase of more than 70,000 since 1900. Under the Venetians, the pop. had been estimated at 250,000, but this number diminished after the conquest of the island by Turkey. The pop. then rose until the Gk. revolution of 1821, after which came a great fall. Since that time it has again increased to the present number. All the inhabitants, whether Christian or non-Christian, speak Gr. and the great bulk of

the inhabitants belong to the Gk. Orthodox Church; the island being governed by a synod of seven bishops, with their president, the metropolitan of Candia, dependent on the Patriarch of Constantinople. There are about 3500 Gk. churches on the island, and four Roman Catholic churches. Education is nominally compulsory. The chief cities are Canea (26,604), Candia or

art and culture thus brought to light were termed 'Mycenaean,' covering the later Bronze Age. This civilisation was but a late and decadent stage of a highly advanced and wide civilisation centred in C., of which the great period may be dated from the end of the third millennium and first half of the second millennium B.C. This civilisation, now generally known as Ægean, covers all that



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PLAN OF THE PALACE AT CNOSSUS

Heraclion, the former capital and see of the Archbishop of Crete (33,404), and Retimo (8632), all on the N. side of the island.

Archæology.—In the Homeric age there were over a hundred flourishing cities throughout C. The remains of many of these are of great interest archæologically. Extensive excavations have been carried out during the nineteenth century, and through the discoveries made by Schliemann at Hissarlik (Troy) and at Mycenæ, interest in the origin of prehistoric Gk. civilisation was revived. The

period of Eastern Mediterranean culture before the beginning of the historic period of Gk. history, usually dated 800 B.C. Perhaps the most striking feature is that writing, hieroglyphic and linear, was in use, a confirmation of the old legend that the Phœnicians did not invent but only changed the alphabet. Evidence of this civilisation has been found as far W. as Spain, Sardinia, and Marseilles, near Venice in the Adriatic, largely in Sicily, throughout the Ægean, in Cyprus, and in Palestine. Trade with Egypt was frequent from

the earliest time. Before the discoveries, mainly due to Sir Arthur Evans, Gk. history before the Dorian invasion was a waste of legends and myths. The tale of Minos, the law-giver, the tribute of boys and maidens from Athens to the minotaur, of Theseus, Ariadne, and the Labyrinth built by Dædalus, all have now a foundation of fact. In 1834 was found, 4 m. from Candia, the site of Cnossus, the ancient metropolis; in 1851 Spratt discovered many ruins, and in 1878 Minos Kalokhairinos came on large jars and remains of pottery identical with 'Mycenæan' art. In 1894 Evans explored part of E. and Central C. Evidence was forthcoming of a script entirely unknown and undecipherable. In 1905 Evans began the excavation work at Cnossus, and unearthed a vast palace, forming a large square, occupying nearly six acres, with a paved central court, halls, and antichambers, connected by passages well built and arranged. A small council chamber, in which is a gypsum throne, has a bath chamber attached; there were upper stories and wide stone stairs; the palace revealed a most modern system of drainage, with water-closets, a stone shaft carrying the water from the roofs to flush the drains, latrines, and other sanitary conveniences. Terra-cotta pipes of modern pattern connect with the main drains. Fresco-painting of an advanced and realistic style decorated the walls, many representing bulls and bull-fights, one of a procession in life-size of women with tight-belted waists and flounced skirts, curiously modern in appearance. The costume is distinctly marked from that of historic Greece. A fresco of a handsome youthful cup-bearer with tightly fitting belted drawers has a profile almost Gk. in outline, with no Semitic or Eastern traces. Immense stone and earthenware jars, beautifully decorated, were found in large quantities, probably used for storing oil and corn. Clay documents, inscribed in the unknown writing, abound, as also do lead and clay seals, probably used for documents of more perishable nature. From the shrines it is seen that the worship was mainly that of a great mother goddess, with fetish images of pillar and dove, of double-headed axes and of serpents. Enamel work and inlay are of high artistic excellence; a gaming-table of gold-plated ivory with crystal plaques set in silver and blue enamel is a beautiful example. Ivory figures of exquisite workmanship show the plastic skill. The highest perfection is found in the pottery; the polychrome on white or dark ground,

'Kamares' ware, preceding that of dark painting on a lighter ground. The decoration, markedly distinguished for the early Gk. geometric patterns, is designed in free representations of flowers, aquatic plants, and animals. A small columnar sanctuary used in the worship of the Minoan Goddess as Lady of the Nether World was found in 1929, and the W. Portico and E. Portico were explored. A winding staircase from the sanctuary led to a lustral basin in the depths of the earth; while a tunnel in the E. Bastion was found to lead in a series of parabolic curves, broken up at intervals by small settling tanks, to a large tank for purposes of washing. Sherds were also found, which dated from c. 1900 B.C., and wall-paintings formed by the impressions caused by a small sponge dipped into yellow paint and then applied to the wall. The restoration of a fresco of Minoan octagonal shields and spiral bands was accomplished.

In June 1930 an outer entrance system was seen and explored. A wall dating from c. 2100 B.C., composed of massive blocks, enclosed an acropolis, houses, and part of the palace court. Two round walled pits disclosed sherds dating from the Middle Minoan period. A movable stone altar, with a relief of the sacrificial horns and double axes, was a notable discovery. These ancient remains were found to have been built over houses of a still more distant period, with stucco pavements, stairways, and household relics in wonderful preservation. Many vessels decorated with snake designs were revealed. Remains of other palaces and shrines have been discovered throughout the island, at Gortyna, Hagia Triada, Zakro, Phæstos, Palaikastro, and elsewhere. The central date of this great but historic civilisation may be put at about 3000 to 2000 B.C. The periods are divided into Early Minoan, Middle Minoan, Late Minoan, each being divided into three. Some terrible catastrophe, probably from the sea, overwhelmed this great civilisation; a revival took place, only to be followed by another wave, probably connected with the Dorian migrations in Greece; from this blow the great civilisation never recovered.

History.—Recent archaeological investigations prove that C. was the home of an advanced civilisation even before the Bronze Age, and that the Iron Age saw the end of this civilisation. The earliest written histories of C. are much intermixed with myth, and in the old Gk. traditions the island bulks largely.

The Homeric poems speak of 'hundred-citied Crete' as peopled by people of mixed Cretan, Achæan, and Doric descent. The early legends centre mainly on the name of Minos, who reigned as King of Crete at the city of Cnossus. He is spoken of as the founder of Cretan sea power. From his name is derived the term 'Minoan,' applied to the early period of C.'s greatness. The Cretans had, however, no kind of unity among themselves, and hence the islanders never figure largely in Gk. history. They took no part in either the Persian or the Peloponnesian wars, being continuously engaged in internal struggles, which Polybius tells us were carried on with unprecedented animosity. The three leading cities at this time were Cnossus, Gortyna, and Cydonia. In the first century B.C. the Cretans incurred the enmity of Rome, by an alliance with Mithridates, and this was increased when the islanders joined arms with their neighbours of Cilicia in piratical expeditions. An attack was made on C., and the island was subdued in 66 B.C. by Q. Metellus, then surnamed Creticus. It then continued as a Roman province till the year 823, belonging after the division of the empire to the Byzantine emperors. During this latter period it formed part of the prefecture of Illyria. In 823 it was taken by the Saracens, under whose rule it became a slave market and a centre of piracy. In 960 it was recaptured by Nicephorus Phocas and remained under the Byzantine sovereigns until 1204. Then, on the capture of Constantinople by the Latins, and the establishment of the Latin empire, C. was allotted to Boniface, Marquis of Montserrat, who sold it to the Venetians. The Venetian rule in C. was most oppressive, and many revolts took place but none were attended with success. During this period Candia was made the capital of the island, to which it gave the official title in Venetian language of 'Candia,' a name which the island still retains among the Italians. In 1645, the Turks made an attack on the island, and the discontent of the Cretans made their conquest an easy one. Only the capital held out for long, but the siege of this city, though intermittent, is said to be the longest on record. It lasted for twenty-four years. From this time until the Gk. revolution, C. remained subject to the Porte, but its lot was indeed unfortunate. The first of a regular series of revolts broke out in 1770, but this was ruthlessly put down before it could spread far. The

government grew worse rather than better, and fresh rebellions occurred in 1813 and 1821. In this last the Christian population succeeded in possessing themselves of the whole country, when 7000 Albanians were imported from Egypt. Even with this aid, however, the Turks were not able to reduce the island to submission till 1824. The Great Powers (France, England, and Russia) refused to allow the cession of C. to Greece, and for ten years the island was under the rule of the Egyptian governor. This was the best period in Cretan history, but it soon came to an end. Further revolts occurred, but in 1878, after the treaty of Berlin, when fresh insurrections stirred up by Greece were in progress, the Pact of Halepa was drawn up, largely by the efforts of the British consul in the island. This Pact gave the island almost entire autonomy, but party struggles were so fierce and the intrigues so persistent that the condition of the country grew gradually worse. In 1889 the Porte sent a military governor to the island, whose rule practically abrogated the former treaties. The Powers, however, refused to intervene. No improvement yet showed itself, as the Christians resolutely refused to submit to Mohammedan misrule, and in 1894, the Powers persuaded Turkey to appoint a Christian governor. But in the years since 1889, large sums of money had been drawn from C. to Turkey, and financial troubles ensued. This, and the recall of the Christian governor, led to the outbreak of 1896. The Powers becoming more favourable to C., the Sultan assumed a conciliatory attitude and assented to a scheme of reform presented by the insurrectionists, which practically put the government into the same condition as the Halepa Pact had done. Things now seemed to be settled, but the Porte did all in its power to prevent the reforms promised. In 1897 a Gk. force landed in C. and attacked the Turks. The island was again aflame, but Greece and C. were alone, for the Powers sided with Turkey. Complete autonomy was granted, but annexation by Greece was declared impossible. The Powers compelled assent to this decision by force of arms, and the failure of the Gk. attack on Turkey ratified it. In 1898, the Turkish forces were withdrawn from the island, and Prince George of Greece was nominated as High Commissioner of the is. A small section of the people disliked his arbitrary policy and raised a revolt in 1905, proclaiming the annexation of the island to Greece. This insurrection

was put down by the Powers. In 1906 the Powers gave to King George of Greece the right to propose the High Commissioner, and he appointed Alexander Zaimis. His administration was most successful, and the Powers were soon able to remove their troops. In 1911 it was announced that no more High Commissioners would be appointed to office. On October 14, 1912, Cretan deputies were admitted to the Greek Chamber, and the island was annexed by Greece. The Treaty of London, signed in December 1913, confirmed this act and C. has ever since been under Gk. rule. See Pashley's *Travels in Crete* (Cambridge), 1837; Spratt's *Travels and Researches in Crete* (London), 1867; Stillman's *Cretan Insurrection of 1866-68* (New York), 1874; Raulin's *Description physique de l'île de Crète* (Paris), 1869; Freese's *Short Popular History of Crete* (London), 1897; Sir Arthur Evans, *Palace of Minos*, 1921-28.

Crétineau-Joly, Jacques (1803-75), a French historian whose *Histoire de la Vendée* (1840-42) is a standard work, whilst he was an authority on the relations between the Roman Catholic Church and the State. For his *Histoire Religieuse, Politique et Littéraire de la Compagnie de Jésus* (1844-46), he was able to avail himself of reliable and hitherto unpublished records, yet critics depreciate the work on the ground of its personal bias.

Cretinism, a congenital disease, causing idiocy or arrested mental development, together with bodily deformity, always associated with absence or atrophy of the thyroid gland. The connection between goitre, myxœdema, and C. is close. Myxœdema, however, comes on in adult life, and is associated with a destructive change in the thyroid gland, although the removal of the gland will bring on a similar condition. An enlargement of the gland causes goitre, while a loss of the functioning of it seems to be the cause of C. It is found all over the world, and in all classes of society, it is most common in deep-lying valleys, where light and free circulation of the air are impeded. Thus it is found largely in the lower valleys of the Alps and Pyrenees, and other mountainous parts of Europe. It is rarely met with in altitudes above 3000 ft. Cretins are usually dirty, obscene, and shameless, and have large open mouths with protruding tongues. They have receding foreheads, large hands and feet, and rickety limbs, while they usually have a dwarfish body, with thick, dry, loose skin, and a protuberant

abdomen. The treatment consists in the careful administration of some part or all of the thyroid gland of the sheep. See GOTTRE and MYXŒDEMA.

Cretonne (perhaps from Cretan, a village in Normandy, where linen goods were manufactured), was originally a French fabric, strong and white, with linen weft and hempen woof. The material known as C. to-day is a stout cotton cloth, with a crape, basket, or wave figure produced on the loom, and a pattern printed sometimes on both sides, when the two designs usually differ. It is unglazed, and was introduced about 1860 as a substitute for the thinner chintz, which was largely used for curtains and for covering chairs, etc. Inferior qualities have a weft of cotton waste and patterns printed in bright, fugitive colours.

Creusa: (1) A daughter of Hecuba and Priam, King of Troy. The wife of Æneas, and mother of Ascanius, she was parted from her husband during the tumult following on the fall of Troy, and finally saved by the goddess Cybele, who made her a priestess. In the Virgilian story she appears as a phantom before Æneas, uttering dramatic prophecies of the disasters and eventual glory that awaited him in Italy. (2) Called also Glauce, a daughter of Creon, King of Corinth. Jason conceived a passion for her, and Medea, his wife, jealous of her supplanter in Jason's affections, sent her as a wedding gift a poisoned garment which brought about an agonising death. (3) A daughter of Erechtheus, King of Athens, and the mother of Janus and Ion by Apollo. She exposed Ion at his birth and married Xuthus, to whom she bore no children. The Delphic Oracle told them to take Ion for their son, who had meanwhile been brought up by the Pythian goddess at Delphi. Suspecting his true identity C. determined to poison Ion, but the latter discovered her plot, and she herself was only saved from death by fleeing at once to Apollo's altar.

Creuse, a river and dept. in the centre of France. The river rises near Féniers and flows about 150 m. through the departments of Creuse-et-Indre, Vienne, and Indre-et-Loire, joining the Vienne, a tributary of the Loire, about 12 m. N. of Châtellerault. The department is formed of the old Haute Manche, and parts of Berry and Limousin. It is drained by the river C., and its surface is mountainous, and its soil thin and unproductive. In the southern hilly district there are wide stretches of pasture land. The climate is moist and the cold very severe in winter. Chestnuts form a large proportion of

the food of the population; hemp, potatoes, and fruit are also grown, while cattle, sheep, pigs and goats are reared on the pasture-lands. Coal is mined at Ahum. There are some manufactures of carpets and hangings, and there are dyeworks at Aubusson and Felletin. Wooden shoes and hats are made in large numbers. C. is divided into the arrondissements of Aubusson, and Guéret. Capital, Guéret. Area 2164 sq. m. Pop. 219,150.

Creusot, or Creuzot, Le, a tn., 34 m. N.W. of Mâcon, in the arron. of Autun and the dept. of Saône-et-Loire, Central France. The neighbouring coalfield has caused a number of metallurgical and engineering works to spring up (including the celebrated Creuzot cannon works), which are connected together by over 30 m. of railroad. Pop. 32,450.

Creutz, Gustav Philip, Count (1729-1785), a Swedish poet, was b. in Finland. In 1762 his *Atis och Camilla* was published in a collection of poems. This pastoral idyll, for many years regarded as the crowning ornament of Swedish poetry, possesses, like C.'s other inimitable pastoral, *Daphne*, a grace of style and melody which led admiring critics to call the author 'the last artificer of the language.'

Creuzer, Friedrich (1771-1858), a German philologist, whose earliest and best-known work *Symbolik und Mythologie der alten Völker, besonders der Griechen* (1810-12) was an ingenious attempt to carry back the mythology of Homer and Hesiod through the Pelasgians to an eastern source. His hypotheses however, were pulled to pieces by Hermann, Voss, and others. Among other learned works are his complete edition of Plotinus and treatises on classical philology in 1854.

Creuznach, Kreuznach, or Kreutznach, a tn. of Prussia, on the R. Nahe, about 8 m. S. of Bingen by rail. It is picturesquely situated in a fertile valley at the foot of a hill upon whose summit is a castle. The river, which divides the town into two parts, is spanned by a fine stone bridge. There are noted mineral springs and salt works, also manufactures of woollen goods, snuff, and leather. Pop. 26,000.

Crevalcore, a com. 12 m. N.E. by E. of Modena, in the prov. of Bologna, in Emilia, Italy. Pop. 12,800.

Crèvecoeur (Fr. for heart-breaker), a Dutch stronghold, which was important in history from 1587 to 1794, commanding a central strategic position at the confluence of the Dieze and Meuse, 4 m. N.N.W. of Bois-le-Duc, in N. Brabant, Holland.

Crèvecoeur: (1) A vil. of France in the dept. of Nord, situated on the R. Scheldt, 5 m. S. of Cambrai. Pop. 2130. It was entirely destroyed during the Great War. (2) Also a vil. of France in the dept. of Oise, 12 m. N. of Beauvais. It possesses an old castle with picturesque gardens. There are manufactures of woollen goods and pottery. Pop. 2150.

Creventille, a tn. in the prov. of Alicante, Spain. The surrounding country produces fine melons, wine, wheat, olives, and esparto grass, and oils, carpets, and flour are manufactured in the town, which, with its orangeries and dwarf palms, its cacti and its rocks, presents a very keen and attractive appearance. Pop. 10,200.

Crew (probably from *accrewe*, a reinforcement, from Old Fr. *acreue* and *accrotire*, to increase) is used of a body of men who associate together to carry out some special work, and especially of men employed on a ship, that is, of the petty officers and seamen, exclusive of the captain and commissioned officers. In the royal navy the C. is divided into over 175 grades, the chief being that of the able-bodied seamen. On merchant ships, both sailing vessels and steamers, Cs. are now smaller than they were in consequence of rapid improvements in masting, rigging, etc., in mechanical appliances and generally in the economy of work and power. The Merchant Shipping Acts, especially the elaborate statute of 1894, protect the rights of seamen. British consuls in seaports abroad have numerous duties with regard to British merchant shipping. Thus a consul may make inquiry into all agreements and accounts of the Cs. and into all offences and misdemeanours. Further, he must provide subsistence for shipwrecked, discharged, or abandoned sailors, and listen to any complaints with regard to food, etc. Since the repeal of the Navigation Acts, a master has been able to man his ships with sailors irrespective of qualification, nationality, age or strength. To-day half the Cs. on British ships are foreigners and Lascars, almost equally divided. By the Act of 1907, however, it is stipulated that no seaman may be shipped without some acquaintance with the English language.

Crewe, a municipal borough (incorporated in 1877), with an acreage of 2193, in the Crewe parliamentary division of Cheshire, England. Lying 158 m. N.N.W. of London, it owes its commercial importance to the fact that it is the locomotive building centre of the London Midland and Scot-

tish Railway Co.; that it connects with the south the main lines feeding the N. of England and Scotland, and that it is a junction for the lines passing through the mining districts of Wales and the Black Country of Staffordshire. From C. it is possible to go direct to Liverpool and Manchester, Holyhead and N. Wales, N. Stafford, and Hereford, besides London. It is mainly inhabited by operatives in the service of the railway company, which gave the town its schools, its mechanics' institute, including science and art classes, and a library, and also Victoria Park. The company has further provided a splendid electric power station, a number of subterranean roads to facilitate goods traffic, and a series of postal offices in which the mails for Scotland and Ireland are sorted. Before railways existed C. consisted of three or four farm houses, one of which with the date 1639 still remains. The railway works are the largest in the world. Pop. 46,477.

Crewe, Robert Offley Ashburton Crewe-Milnes, first Earl of (b. 1858), a statesman, is the son of Baron Houghton. In 1899 he married Lady Margaret Primrose, daughter of the Earl of Rosebery. In politics he always followed the Liberal cause. In 1908 he was appointed Secretary of State for the Colonies. In 1910 he was Secretary of State for India and was Ambassador to France 1922-28.

Crewel Work, embroidery worked in coloured worsted yarns called crewels. This kind of wool is especially suitable for larger pieces of needlework, such as table-cloths, tapestries, and various furniture covers. Finer silks have tended of late years to supplant crewels in the field of artistic needlecraft.

Crewkerne, tn. of England, in Somerset, in a fertile valley, 16 m. S.E. of Taunton. Manufactures of horsehair cloth, sail cloth, and dowlas are carried on. The grammar school was founded in 1499. Pop. 3703.

Cribb, Tom (1781-1848), a champion pugilist, started life as a bell-hanger, and became in turn dock labourer, sailor, and coal porter. The important years of his life were given up to fighting, and throughout his many contests, he sustained only one defeat, that being at his second fight in 1805. Among his more famous adversaries were Jem Belcher, whom he defeated twice (in 1807 and 1809), the second time at Epsom, when the stakes were 200 guineas; Bob Gregson and Molineaux, the American black champion, whom also he worsted on two occasions (in 1810 and 1811). His great fighting days over, C. sank to the position of publican in

the Haymarket, whence he twice emerged into public notice, once when he sparred in Pall Mall before the Emperor of Russia (1814), and again when in the garb of a page he guarded Westminster Hall at the coronation of George IV.

Cribbage. This game is usually played by two persons with a pack of fifty-two cards. Sixty-one points constitute a game, and these are scored by means of two pegs on a board containing sixty-one holes. The value of the cards is as follows: the kings, queens, knaves, and tens, all count as ten, the rest of the cards having their face value, the aces counting as one only. The points of the game are scored by means of fifteens, sequences, pairs, by the knave being turned up (usually this point is termed 'one for his nob'), and by making thirty-one, or getting nearest to that number ('one for go'). The cards are shuffled and cut in the usual way, the player cutting the lowest card wins the cut and proceeds to deal. This he does by dealing out five alternate cards face downwards, the non-dealer has the right to score three points at any period of the game to make up for the advantage of the deal. The players having reviewed their cards now proceed to place two from their hand on the table, this is called making the 'crib.' The remainder of the pack is then cut by the non-dealer, and the top card turned up. The cards are then played alternately starting with the non-dealer, and each card is 'called' as it is played, e.g. A, the non-dealer, plays a five, and calls five, the dealer B plays a six and calls eleven. A then plays a four and calls fifteen (for this he scores two points). B then plays a ten and calls twenty-five. A, finding that he cannot play without exceeding thirty-one, calls 'go,' and B scores 'one for the go,' since he also cannot play without exceeding thirty-one, or, on the other hand, plays a four (or a card of a value which will not make the total score thirty-one), and scores 'one for the go' just the same. Should the scores reached be exactly thirty-one, the player first reaching that score marks two points for game. The non-dealer then counts up his score (if any) from his hand, and then the dealer counts first his hand and then, turning up the crib, the crib. The card which has been turned up earlier in the game is a neutral card and counts to the non-dealer, or dealer, if it is any good. Pairs are reckoned up in the hands, or at the end. Sequences: any three cards or more forming a sequence count one point for each card. Also if by replacing one card already counted by another in the same hand

of similar value but different denomination, another sequence can be reckoned, this is done, *e.g.* three (hearts), four, and five count as a sequence, whilst if the player holds also a three (clubs), this forms another sequence and is counted. Fifteens are counted during the play, whenever the value of all the cards played comes to fifteen, and is also counted in the hands or the crib afterwards; in the hands or the crib any combination of cards which amounts to fifteen may be scored, two being counted for each combination. A flush is counted only in the hands or in the crib. In the hands if all the cards are of the same suit this counts a flush, and one is counted for each card, whilst if the card turned up is of the same suit also, one more is counted. In the crib, however, the flush does not count unless the cards in the crib are of the same suit as the card turned up.

Criccieth, a picturesque vil. with ruined castle and fortress, situated on Cardigan Bay in Carnarvonshire. It is fast becoming a favourite seaside resort. Pop. 1886.

Crichton, James (1560-85), commonly called 'The Admirable.' Romance and tradition have been so busy with his name that it is difficult to form any just estimate either of his life or character. He was born at Eliock, Dumfries, and educated at the College of St. Salvator, St. Andrews, under Buchanan, where he had the young king for a fellow-pupil. In 1575 he took his degree of A.M. with great honour and proceeded to Paris. There he served in the army for a short time, and in the University of Paris issued a universal challenge to all men upon all things, to be held in twelve different languages. In spite of spending the interval in music and dancing, on the appointed day he vanquished all his opponents. From Paris he went to Genoa, and repeated the feat, and thence to Venice in 1580. In Venice he won the friendship of the grandson of the famous printer, Aldus Manutius, and challenged all the scholars to feats not only of learning, poetry, and linguistic fluency, but of swordmanship as well. Tradition says that he later proved his exceptional ability as a swordsman by slaying in combat a renowned gladiator at Mantua. In 1584 he published an elegy on the death of the Archbishop of Milan, Cardinal Borromeo, and odes in honour of his successor and of the Duke of Savoy, and in 1585 he published a volume of Latin poems. In 1585 he was appointed tutor to the Duke of Mantua's son, but in the same year was stabbed by his pupil, whether through jealousy

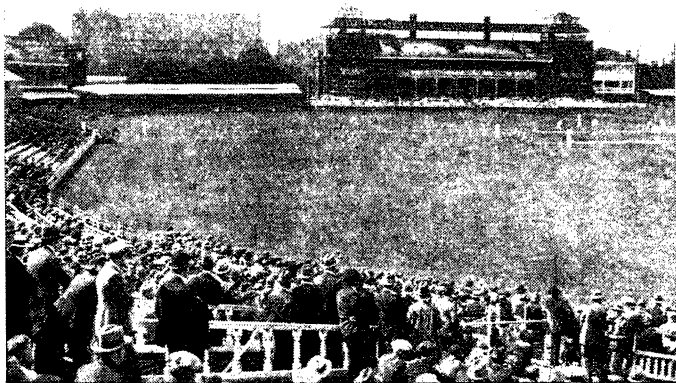
or in a drunken brawl is unknown. That he was a prodigy was acknowledged by men of some weight, although, owing to his youth, it was improbable that his learning was of any depth, or his accomplishments of more than surface excellence. See Sir Thomas Urquhart, *Discovery of a most Exquisite Jewel*, 1652; Harrison Ainsworth, *Crichton*; and Lives by Urquhart and Irving.

Crichton-Browne, Sir James (b. 1840), a commissioner in lunacy, attended Glenalmond, and later Edinburgh University, where he obtained in 1862 his M.D. degree. Since 1875 he has been the Lord Chancellor's visitor in lunacy, and has acted as vice-president and treasurer of the Royal Institution from 1889. Besides being the recipient of many honorary degrees, he has published a number of treatises on nervous and mental diseases.

Cricket. Although the present game is of comparatively recent date, the origin of the pastime goes back to the dim mists of the past. The Saxons had a game called *creag*, which they played with a bent, wooden bat, and in the reign of Edward I., mention was made of the game in the wardrobe account of the king for the year 1300. It was said to have been played in Surrey in the middle of the sixteenth century, and is alluded to in Phillips's *Mysteries of Love and Eloquence*, which was published in 1685, and in an old book published in 1672, it was stated: 'Maidstone was formerly a very prophane town, inasmuch that before 1640 I have seen morrice dancing, cudgel playing, stool-ball, crickets, and many other sports openly and publicly on the Lord's Day.' In the *Postman* for July 24, 1705, there is a notice to the effect that a C. match 'will be plaid between eleven gentlemen of the west part of Kent and those of Chatham for eleven guineas a man.' In 1711 Kent played all England, and in a copy of the *Evening Post* for August 7, 1729, is the following quaint entry: 'On Tuesday was played a cricket match on Kennington Common between the Londoners and the Dartford men for a considerable sum of money, Wager and Betts, and the latter beat the former very much.' The nobility and even royalty were enthusiastic patrons of the game, and large sums of money were wagered, and in 1735 the Prince of Wales and the Earl of Middlesex brought two teams together for a bet of £1000. In 1746 Kent again played all England, and this is the first match of which the full score has been preserved, the county winning by one wicket. In 1747 Surrey played all England, and

in 1773 the first county match was played between Surrey and Kent, when the former were victorious by thirty-five runs. The Hambledon was the first club to be formed, and flourished about this time. It was started in 1750 in Hampshire, and had its ground on Broad Halfpenny and Windmill Downs. It was the cradle of modern C., and took the lead in all matters pertaining to the game. David Harris and William Beldham were the most famous players of that old-time club, as batsman and bowler respectively. In 1774 the first written rules were drawn up. In the early days wickets

John's Wood, the ground of Thomas Lord, which has ever since been known as Lord's. The earliest writers on the game were Nyren, Lambert, and Pyecroft, and their books are very curious and interesting, and show how different the game was in their day. All bowling was at one time underhand, and the introduction of the round-arm deliveries was at first viewed with great disfavour by the Marylebone Club. It was not until about 1825 that this method of bowling became at all general. It was considered dangerous and led to the introduction of leg-pads and batting gloves, things



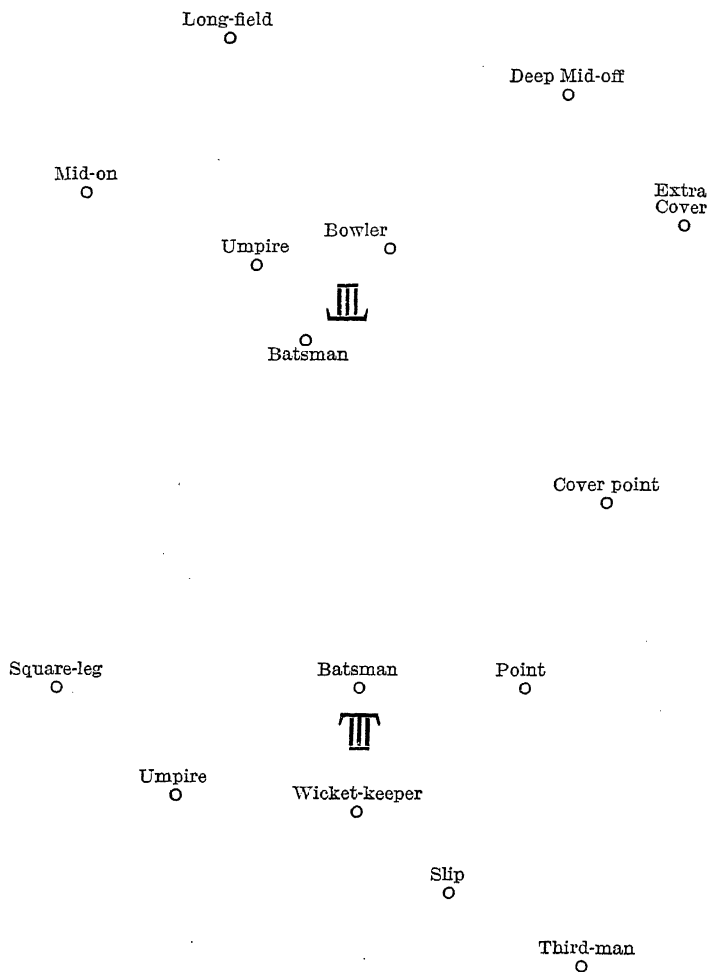
[D. McLeish

LORD'S CRICKET GROUND

consisting of only two stumps were used, and it was not until the close of the eighteenth century that the third was instituted. At first there was no limit to the size of the bat, which was shaped rather like a club. Single-wicket matches were at one time very popular and often played for high stakes, but now they are practically never seen. In the early days the score was kept by cutting notches on a stick, one for each run. The Hambledon club continued till 1791, when it was disbanded, but the newly-formed Marylebone Club (started in 1787) took its place as leader of the C. world, a position which it fills to this day. Their first ground was in Dorset Square, Marylebone, and then Regent's Park, but in 1814 it moved to St.

quite unknown in the old days. The game continued to progress in popular favour, and in 1845, the I. Zingari Club was formed. From that date the game has advanced in leaps and bounds, till nowadays it has become so scientific that were the ghosts of the early players to return they would hardly know it, much less be able to play it! In 1865 over-hand bowling was sanctioned, and this made a great difference in the game. The modern game is played with eleven men on each side. The stumps are three in number, 27 in. high, and the wicket 8 in. wide. In 1929 the height and the width of the wicket were both increased by one inch, thus enlarging the area of the wicket by 36 sq. in. in the bowler's favour. The wickets are pitched

POSITION OF FIELD FOR MEDIUM-PACE RIGHT-HAND BOWLER



The field is, of course, altered according to the different types of bowlers.

22 yds. apart, and surmounted with two bails. The ball is $5\frac{1}{2}$ oz., and a full-size bat is 38 in. by $4\frac{1}{2}$ in. at the widest part. Two batsmen are at the wickets at once, the object being to score as many 'runs' as possible, one run being scored every time the batsmen exchange ends. The batsmen can be 'out' in nine different ways: (1) Being clean bowled; (2) being caught out; (3) being stumped out; (4) being run out; (5) hit wicket; (6) leg-before-wicket—in 1929 it was ruled that a player could be adjudged out even if he had already played the ball which hit his leg; (7) wilfully hitting the ball twice except in defence of the wicket; (8) handling the ball; (9) obstructing the field. Many variations occur in the placing of the field according to different bowlers. It is the wicket-keeper's duty to prevent an unhit ball from passing him: if he fails to do so it is a 'bye,' and on it the batsman may score a run. Sometimes the wicket-keeper is aided by another man straight behind him called 'long stop,' but in good-class C. this is rather the exception than the rule. Should the ball pass the wicket-keeper it can be fielded by 'long slip,' or 'long leg,' who stand behind the wicket-keeper to right and left respectively. Between 'long slip' and the wicket-keeper stands 'short slip'; almost on the batsman's right and near to him stands 'point'; 'cover point' is further to the right and front, while at approximately the same position on the left stands 'mid on.' 'Mid off' is near the bowler, slightly in front on the left-hand side, while behind the bowler on his right and the furthest fielder from the batsman is 'long field.' These are the usual positions, but a captain may place his men where he will. Bowling takes place alternately from each wicket in series of six deliveries. This series is called an 'over,' and a 'maiden over' is one in which no runs have been scored. At the end of each 'over' the fielding team take up the corresponding places in regard to the new bowling point. The umpires are the sole judges of every point that may arise and their decision is seldom disputed, and no umpire is allowed to bet on the game. First-class matches take three days to play, but the great majority of club matches are one day or half a day only. Test matches (i.e. inter-imperial) are allotted four days, but the final match, if it is the deciding game, is played to a finish. There are seventeen first-class counties, and these compete for the County Championship, each county

having to play twenty-eight matches. New methods of scoring were introduced in 1929 and 1930, whereby fifteen points are given for a win, these being divided in the event of a tie, while in a drawn match five points go to the side leading on the first innings and three points to the losing side. The M.C.C., the Australians, the S. Africans, the W. Indians, and both Oxford and Cambridge Universities are counted as 'first-class' C. teams. A man can be eligible to play for his county in two ways,



SANDHAM OF SURREY MAKING A LATE CUT

either by birth or residence, the latter having to be two consecutive years before the season. This rule applies to amateurs and professionals alike. A cricketer may qualify for one county by residence, and at the same time play for another county. As regards the more personal side of the game one of the most famous players the world has produced was Dr. W. G. Grace, who for nearly forty years took an active part in first-class C., and was top of the batting averages twelve times. Altogether he scored 217 centuries, 126 of these being in first-class C., and his total number of runs was 54,896. He is, however, rivalled by the Surrey professional, Jack Hobbs, who had scored 175 centuries in first-class C. by the end of the 1930 season. He surpassed Grace's record in 1925 with a seasonal aggregate of 3024, including sixteen three-figure innings, a record number. He played a great part in bringing the 'Ashes' back to England in the year 1911.

Prince Ranjitsinhji was another notable cricketer, and during the years 1890-1900 was the finest bat in the world. A. C. Maclaren held the record of the highest individual score, which is still the highest in English C.; he made 424 for Lancashire against Somerset in 1895. At present the record is 452 runs, scored by Don Bradman for New South Wales against Queensland at Sidney, Jan. 6, 1930. C. B. Fry, once captain of England, was a great bat as well as a grand all-round athlete, and in his career he scored over 26,000 runs. P. F. Warner was another English captain, and a fine bat. His *Book of Cricket* is an interesting personal record of the game. A. E. Stoddart, alike famous as a great bat and a great three-quarter at Rugby football, is yet another English captain. A. P. F. Chapman, an excellent fielder, captained England against the Australians in 1923 and again in 1930. Among the professionals must be mentioned the Surrey pair, Abel and Hayward. The latter holds the record for the number of runs scored in a season, for in 1906 he made 3518 for Surrey. Woolley of Kent nearly reached this with a total of 3352 runs in 1928. Among other cricketers may be mentioned:—Gunn and Shrewsbury of Notts.; Richardson of Surrey, who in 1895 took 290 wickets—a world's record; Hirst and Rhodes of Yorkshire—the veteran Rhodes returned in 1926 and did much to win the Ashes for England; the Foster brothers of Worcester (H. K. and R. E.); B. J. T. Bosanquet of Middlesex, the inventor of the 'googlie'; R. H. Spooner of Lancashire; Tyldesley of the same county; and L. C. H. Palaret of Somerset, K. L. Hutchings of Kent, the Hon. F. S. Jackson of Yorkshire, J. T. Hearne of Middlesex; W. R. Hammond, H. Sutcliffe, and M. W. Tate, the bowler, are among other great players. T. Hayward, E. Hendren, C. P. Mead and F. E. Woolley have all obtained over one hundred centuries. To mention a few other C. records it may be interesting to note that the longest partnership is 554 made by Brown and Tunncliffe for Yorkshire against Derbyshire. W. G. Grace took 2876 wickets during his long career, and the second highest number was 2702 by J. T. Hearne. At the top of the seasonal aggregates is A. P. Freeman with 304 wickets in 1928. The highest total in first class C. was made by Victoria against New South Wales at Melbourne in 1926; it is 1107. In England the highest is 887, made by Yorkshire

in 1896. The lowest score is 12 by Oxford when playing M.C.C. in 1877, and by Northampton against Gloucester in 1907. Victoria was once dismissed for 15 when playing against England in 1903. As regards Australian C., the first English team visited that country in 1862, and in 1878 the first Australian team came over here. Since then visits of both teams to each country have been made. In all 124 Test Matches



HOLMES OF YORKSHIRE PLAYING
BACK TO A RISING BALL

have been played between England and Australia, of which Australia has won 50, England 47, and 27 have been drawn. Among the best known of the Australian cricketers may be mentioned Victor Trumper, one of the finest bats that country has produced; M. A. Noble, a splendid all-round cricketer; George Giffen, the Grace of Australia; C. Hill, perhaps the finest left-handed batsman of any period; J. J. Darling, another left-hander; H. Trumble, Australia's greatest bowler; W. Armstrong; V. Ransford; W. Bardsley; G. C. Macartney; S. E. Gregory; C. V. Grimmett; W. H. Ponsford; Don Bradman; and W. W. Woodfull, captain (1930). The S. Africans are comparatively new as a cricketing power, for the first English team as such to visit that country was that of 1906. Altogether forty-nine Test Matches have been played, of which England

has won twenty-eight, S. Africa ten, and eleven have been drawn. The season 1912 was unique in the history of the game, for the Triangular Tournament between England, Australia, and S. Africa took place then. Nine matches in all were played, three between England and Australia, three between England and S. Africa, and three between Australia and S. Africa. England won the tournament, and the actual results were as follows: England *v.* Australia, 1; Australia, 0; drawn 2. England *v.* S. Africa, 0; drawn 3. S. Africa, 0; drawn 0. Australia *v.* S. Africa: Australia, 2; S. Africa, 0; drawn 1. Hobbs (48·37) was top of the batting averages for England, W. Bardsley (65·33) for Australia, and C. P. Carter (21·00) for the S. Africans. In the bowling Woolley (8·94), T. J. Matthews (17·00), and S. J. Pegler (20·40) headed the bowling respectively. Refer H. S. Altham's *History of Cricket* (1926); P. F. Warner's *Book of Cricket* (1922); Wisden's *Cricketer's Almanack* (issued annually).

Cricket, the name applied to members of the family of orthopterous insects known as Gryllidae, which is very closely allied to the locust family. The species are noted for their long and slender antennæ, hind legs formed for jumping, wings folded closely lengthwise, tarsi usually three-jointed, and a long ovipositor in all the females but those of the subfamily Gryllotalpineæ. Many of the species are wingless, and it is the males only which make a chirping sound by rubbing the wing-covers on one another. They are widely distributed, and all are herbivorous but the carnivorous Gryllotalpides. *Gryllus campestris*, the field C.; *G.* (or *Achetia*) *domesticus*, the house C. (the 'C. on the hearth' of Dickens); and *Gryllotalpa vulgaris*, the common mole-cricket, are well-known representatives of the family.

Crickhowel, a tn. of Wales in Brecknockshire, situated in the Usk valley. It possesses a Norman castle, belonging to the Duke of Beaufort. About 2 m. N.E. of the town is a hill named Crug-Hywel, from which the name C. is derived. Pop. 1307.

Cricklade, a mrkt. tn. of England in the co. of Wiltshire, situated on the Thames, 7 m. N.W. of Swindon, and 42 m. N. of Salisbury. It was formerly an important town, having Anglo-Saxon associations. The industries are purely agricultural. It is endowed richly with charities, and possesses several educational establishments. Pop. 1425.

Criefi, a police bor. of Perthshire, Scotland, lying 18 m. to the W. of

Perth, on the L.M. & S. Railway. Here there are manufactories of woollen and worsted, cotton and linen goods, but the town is known chiefly as a health and pleasure resort because of the purity of its air. Many tourists visit the terraced Italian and Dutch gardens of Drummond Castle, the keep of which was built in 1490. Up to 1770 a great cattle fair was held at C., when its 'kine gallows' punished the Highland sheep-lifters. Pop. 5877.

Crile, George Washington, American surgeon, b. 1864, at Chili, O.; son of Michael C. Grad. Ohio Northern Univ., 1884; M.D. Wooster Univ., 1887. Studied also in Vienna, London, and Paris. 1st Lieut. U.S.A. Med. R.C., Porto Rico, 1898. F.R.C.S. Eng., 1913. Major Med. O.R.C. and professional director 1917-18; Lakeside Base Hosp. Unit, U.S. army with B.E.F., France; senior consultant in surgical research 1918-19. Colonel, 1918. Has written many medical books and some of a more philosophic nature. He is an authority on surgical shock.

Crillon, Louis des Balbes de Berton de (c. 1541-1615), a French soldier, surnamed 'le Brave,' served his apprenticeship for war under the famous Francis, Duke of Guise, then the mirror of all military virtues. The valour displayed by C. at the siege of Calais and the taking of Guines won for him many fat livings, which he gave to the keeping of learned priests. At Dreux and Moncontour he was again to the fore, and at the battle of Lepanto, in spite of wounds, he was chosen to bear the tidings of victory to the king. Shocked at the Bartholomew massacres, as a staunch Catholic he nevertheless fought at the siege of La Rochelle (1573), but when Henry of Navarre came to the throne he gladly fought his battles. His last days were passed in pious exercises at Avignon.

Crime. In Great Britain the annual averages of all crimes known to the police were 84,247 for 1900-4, 99,141 for 1905-9, 97,924 for 1910-14, 84,616 for 1915-19, 115,509 for 1922-26, and the total for 1927 was 125,703. C. is therefore on the increase, especially wounding, rape, house-breaking, and larceny. (For the classification of Cs., see CRIMINAL LAW.) Crimes of violence have steadily diminished. 140 murders, of which 41 were of infants, were committed in 1927, whereas the annual average for 1922-26 was 152. Crimes against property tend to occur in autumn and winter, crimes against the person in spring and summer. There is no evidence of

a so-called 'crime-wave' in Great Britain. In the U.S.A., however, the post-war 'crime-wave' is described rather as a rising tide, although in New York State the total number of crimes dropped from 70,847 in 1927 to 43,331 in 1928. The numbers in prison per 100,000 of the general pop. were 69 in 1904, 75 in 1910, 74 in 1923, 83 in 1926, and 85 in 1927. About 12,000 persons are murdered annually, and the homicide mortality has increased from 2 per 100,000 in 1900 to 7 in 1915, 8 in 1924, 11 in 1926, and back to 7 in 1929. In England the proportions were 0.8 per 100,000 from 1905 to 1914 and 0.7 from 1922 to 1927. The difference in the conditions between Great Britain and the U.S.A. makes a comparison useless, but one reason of the growth of criminality in the U.S.A. is the uncertainty of detection. America is a very much larger place than the British Isles, and consists of a number of states each governed by different laws. A more serious indictment of American justice, well recognised by Americans themselves, is that outside interference, sometimes in the form of 'graft' or corruption, often hinders the operation of the law. Statistics show a startling difference between the number of prosecutions and the number of subsequent convictions. Public tolerance of the criminal is another reason for the increase of C. The modern criminal is becoming a highly-trained specialist, and there is no branch of C. so efficiently specialised as that of safe-breaking. The 'yegg' or safe-breaker is a competent mechanic, often able to open the most intricate combination locks; but even when this is done, he will blast off the lock with an oxy-acetylene lamp to avoid suspicion that that particular lock is no longer efficacious. Nitroglycerine is also used for blowing open a safe, the explosive being inserted in a hole made with an electric drill. Another method of safe-breaking is to sprinkle on the top of the safe a mixture of iron oxide, powdered aluminium and powdered magnesium, which, when lighted, melts the flat steel surface. To prevent this, safe-manufacturers have evolved an elliptical safe. The modern cracksmen are well equipped with scientific methods of house-breaking, etc.; burglar-bells, for instance, can be put out of action by corrosive acid carried in a syringe. Behind the professional burglar there is often a large and efficient organisation. Working in 'gangs' is a feature especially of American C. The

casual type of burglar with mask and jemmy is a thing of the past. The modern crook has become a psychologist, and turns confidence trickster or organises what in America is known as a 'racket.' Organised racketeers force owners of e.g. laundry-businesses and garages to pay a monthly subscription for immunity; otherwise their business is ruined in ways which do not admit of police prosecution. Besides the racketeer who trades on his personality to acquire people's confidence, there are those who organise real-estate swindles, stock-market and insurance frauds, gambling rings, smuggling schemes, etc. Each new law, such as prohibition, brings its own sort of C. (See BOOTLEGGING.) One distinguishing feature of American C. is the accompanying violence, often resulting in the death of police officers. In the U.S.A. in many states there are no restrictions on the sale of arms nor on their possession provided that they are not concealed. Bandits are therefore armed, and 'hold-ups' are considered more profitable than house-breaking. The days of the highwayman have returned, but the modern bandit escapes in the high-speed car, which has become an indispensable asset to all criminals.

Crimea (Tartar 'krym,' ancient Taurica Chersonesus), an autonomous area in South Russia forming a peninsula between the Black Sea and the Sea of Azov, and connected with Russia by the isthmus of Perekop, 18½ m. long by 3 to 4 m. in breadth at its narrowest part. The peninsula, an irregular quadrilateral in shape, is 200 m. from E. to W. by 125 m. from N. to S., with an area of 9700 sq. m. Its coast-line is about 625 m. in extent. The Crimean peninsula is cut off from the mainland on the E. by the strait of Yenikale or Kertch. On the N.E. is the shallow inlet of the Sea of Azov known as the Sivash, or 'Putrid' Sea. On the S. the coast is broken by the bay of Kaffa, or Theodosia, W. of which it becomes rocky and broken into many capes and small bays. Balaklava and more especially Sebastopol have very fine harbours. The C. is watered by many small rivers, the chief of which, the Salghir, divides the peninsula into two distinct regions. The N.W., and much the larger, division is a continuation of the Russian steppes, an extensive plain with a salty soil only fit for pasturage. The S.E. division is for the most part mountainous, broken by fertile valleys and beautiful meadow-lands. The Yailah-dagh range of mountains skirts the S.E. coast, attaining to a height of 5060 ft. in Roman Kosh, and 5000 ft. in

Chatyr-dagh, or 'Tent' Mountain (ancient Trapezus). Thermal and naphtha springs and mud volcanoes are found in the hilly district round Kertch. The climate of the two divisions is as different as their surface. The N.W. is healthy and mild in the spring, summer, and autumn, but in the winter is exposed to cold winds from the steppes and very severe frost and snow-storms. The S. coast enjoys the same climate as the Riviera with accompanying vegetation: vineyards, olive gardens, laurels, cypresses, and fig-trees, and with the brilliant flowers of the Mediterranean coast. The chief products of the C. are grain, tobacco, wines, and fruits. Its honey is famous. The small salt lakes yield large quantities of salt; porphyry, limestone, and sandstone are also found. Fish of many kinds, including salmon and sturgeon, abound round the coasts, and the C. provides a noted oyster. The chief towns are Simpheropol, Sebastopol, Yalta and Theodosia, chief of the summer bathing resorts. The bulk of the population is of Tartar extraction, with the chief Tartar characteristics often practically obliterated by constant intermarriage with Gks. and others, so that the unmistakable Tartars are outnumbered by Russians. The remainder of the population is composed of Gks., Karaite Jews, Germans, Bulgarians, and Armenians. Pop. 700,027.

History.—The earliest inhabitants who left any traces were the Celtic Cimmericians expelled by the Scythians in the seventh century B.C. They took refuge in the mountains, and were known later as the Tauri. In the sixth century B.C. Ionian and Dorian Gks. began to settle in the peninsula, the former at Theodosia and Bosphorus or Panticapæum, which they turned into a granary to supply Athens with wheat. In the fourth century B.C. the ruler of the latter kingdom assumed the title of king of Bosphorus. In the first century B.C. the then king of Bosphorus, to obtain help against the Scythians, put himself under the protection of Mithridates, king of Pontus, and in 63 B.C. Mithridates' son was given the kingdom of Bosphorus by the Romans as a reward for helping them against his father. In 15 B.C. the king of Pontus regained it, but only as a tributary state of Rome. In the third and fourth centuries the C. was successively overrun by the Goths and Huns, by the Khazars (eighth century), the Byzantine Greeks (eleventh century), the Komans or Kipchaks (1050), and the Mongols (thirteenth century). In

the thirteenth century first the Venetians and then the Genoese formed trading settlements on the coast which flourished until the conquest of the peninsula by the Ottoman Turks in 1475. In 1783 the C. was annexed to the Russian empire, and since then the only important event in its history has been the war of 1854-56. See J. B. Telfer, *The Crimea and Transcaucasia*, 1876; C. Bossall, *The Beautiful Scenery of the Crimea*, 1855-56; *Antiquités du Bosphore cimmérien*, 1854; and Sir Evelyn Wood's *The Crimea in 1854 and 1894* (1895). See BOSPHORUS and CRIMEAN WAR.

Crimean War was brought about largely through the aggressive policy of Czar Nicholas I. of Russia, who had visions of a Russian empire embracing the whole of South-eastern Europe, and determined to win Constantinople. Using as his pretext an obscure quarrel in Jerusalem between Gk. and Latin Christians, Nicholas boldly claimed from the sultan a protectorate over all the Gk. Christians in the Ottoman dominions, thereby hoping to make the impending war a struggle between Cross and Crescent. But the sultan issued a solemn edict to the Christians, promising them full religious liberty, and appealing to France and England for help. Both Powers responded to his request, the former because it was anxious to avenge Moscow, the latter because it feared its eastern possessions would be menaced were Russia allowed to reach the Mediterranean. Yet at the time the Manchester leaders, Cobden and Bright, courageously denounced the war in the face of a bellicose people. The actual war extended from 1853 to 1856, being terminated by the unsatisfactory Peace of Paris. There were some naval engagements in the Baltic, but the true interest of the war is concentrated round Sebastopol, the Russian stronghold in the Crimea. The allied forces were at first mustered in Varna, but in 1854 were transported to Eupatoria, after having suffered terribly through cholera. By the victory of Alma in September 1854, when the brunt of the fighting fell on the English, a way for the allies was cleared to Sebastopol. It was during an October attack by the Russian general Menshikov upon Balaclava, the English headquarters, that the Light Brigade won an undying fame by its fatal but valiant charge through North Valley. In November the English Guards and troops on the hill of Inkermann beat back the assaulting Russians, but in spite of their victory dare not attempt to capture

Sebastopol by storm. Accordingly the allies settled down to a winter siege. Tempests wrecked the transports bearing clothing, ammunition, etc., so that the soldiers were totally unprepared to endure the snows and bitter cold, and Miss Florence Nightingale, who did a noble work as nurse, bore vivid testimony to the acute sufferings and deprivations and also to the patience and courage of the soldiers. Early in 1855 the English commander-in-chief, Raglan, and Nicholas died. In August the French and Sardinians, who had joined in the war, defeated the Russians at the battle of the Chernaya, and the former captured the redoubt, Malakov, though the English were driven back from the Redan. In September the Russians surrendered Sebastopol. By the provisions of the treaty the Russians abandoned their claim to a protectorate over the Christians, and agreed not to build any more forts on the Euxine, but recovered Sebastopol. The Great Powers assumed responsibility for seeing that the Sublime Porte fulfilled its guarantees to the Christians. Navigation on the Danube was thrown open. This war demonstrated to England the folly of attempting to rehabilitate Turkey, the crying need for reform in military organisation, and the stubborn valour of the troops. See Kinglake's *History of the Crimean War*.

Criminal Appeal, Court of, was established in England by the Criminal Appeal Act, 1907. The judges eligible to sit in the Court are the Lord Chief Justice and the judges of the King's Bench Division (appointed for the purpose by the Lord Chief Justice with the consent of the Lord Chancellor for such period as he thinks desirable in each case). The number of judges at any sitting is three. By the above-mentioned Act the right of appeal is given to a person (a) against conviction on ground of appeal involving a question of law. (b) With the leave of the Court or upon the certificate of the judge who tried the prisoner that it is a fit case for appeal, against conviction on any ground of appeal involving a question of fact alone, or a question of mixed law and fact, or any other ground which appears to the Court to be a sufficient ground of appeal. (c) With the leave of the Court against the sentence unless the sentence be one fixed by law. The Court in any such appeal shall allow the appeal if they think that the verdict of the jury should be set aside on the ground that it is unreasonable or cannot be supported

on the evidence, or that the judgment of the Court before whom the appellant was convicted should be set aside on the ground of a wrong decision on any question of law or that, on any ground, there was a miscarriage of justice. The Court may, however, dismiss the appeal notwithstanding that they are of opinion that the point raised in the appeal might be decided in favour of the appellant, if they consider that no substantial miscarriage of justice has actually occurred. On an appeal against sentence the Court shall, if they think that a different sentence should have been passed, quash the sentence passed at the trial and pass such other sentence (more or less severe) warranted in law by the verdict, and this implies a power to increase the term of imprisonment given in the Court below. The Court shall, if they allow an appeal against conviction, quash the conviction and direct a judgment and verdict of acquittal to be entered. The principle upon which the Court act is that of attaining the end of substantial justice. They will not quash a sentence upon a mere technicality but require proof that there is a doubt whether, had the proceedings been conducted differently, the jury would have found another verdict. In this connection, it is to be noted that the Court has decided that the prisoner is entitled to have his defence, however weak or improbable, included by the judge in his summing-up and the omission of this duty by the judge is sufficient to upset the verdict on appeal. The appellant is entitled to be present on the hearing of an appeal against conviction, but not on an application for leave to appeal.

C.I.D. (Criminal Investigation Department) is the detective branch of the Metropolitan Police. The C.I.D. was created in 1878 under Howard Vincent, who was appointed Director of Criminal Investigation. Under his successor, James Monro, the C.I.D. was brought under the nominal control of the Commissioner of Police, and Monro became Assistant Commissioner. To cope with the Fenian outrages, 1883-85, Monro created a special branch of the C.I.D., first called the Special Irish Branch. The Special Branch is still continued, and is concerned with the protection of state personages and with any crimes directed against the state. During the war, under Superintendent Melville in the earlier months, it did valuable work in connection with counter-espionage. The Special Branch, however, is not under

any form of political control. In addition to this branch, the C.I.D. consists of a staff of detectives at New Scotland Yard, and at each of the twenty-three divisions of the Metropolitan Police District. The activities of the detective staff at Scotland Yard are divided between the Central Office and the Criminal Record Office, which includes the Finger Print Bureau. The established strength of the C.I.D. is 915 men; the actual strength (Dec. 31, 1928) is 910 men—6 superintendents, 8 chief inspectors, 102 inspectors, 400 sergeants, and 394 constables (or simply detectives). Plain-clothes detectives are selected from those showing special aptitude after serving in the Uniform Branch for 12 months. The C.I.D. is noted for its excellent team work, and it is now subdivided into branches which specialise in various aspects of crime. The C.I.D., of which the Flying Squad is a part, operates only within the metropolitan area, but the Chief Constable of a provincial district may solicit the aid of the C.I.D. through the medium of the Home Secretary. The number of inquiries undertaken for the provincial and continental police totalled 6000 in 1928. The work of the C.I.D. is confined to indictable offences of a more serious character, which in London have numbered 16,104 in 1926, 15,328 in 1927, and 15,886 in 1928. Much valuable work is also done by the C.I.D. in preventing crime.

Criminal Law. The professed object of C. L. is the prevention of crimes by the deterrent effect of punishment. The term crime does not lend itself to exact definition, but may be described as 'an act forbidden by law under pain and punishment.' The advantage of this description by reference to the sanction (*i.e.* evil incurred by reason of disobedience to command) is that crimes can be differentiated from civil injuries or torts, the two terms not being mutually exclusive. Neither the moral quality of a particular act nor the enormity of its consequences is a certain criterion for referring it to the category of crimes. Theoretically these may be valuable tests in that the fundamental object of the C. L. is the vindication of a wrong done to the community, whereas damages are given by way of compensation for a wrong tending rather to the prejudice of a private right. Again, as civilisation advances, the tendency, in marked contrast to ruder states of society when even theft was regarded as a civil injury, is to increase the number of acts the moral obliquity of which

renders them punishable as crimes. Most crimes necessarily include a tort, *e.g.* libel, assault, and rape, and give a right to sue for damages; but many crimes, such as treason and perjury, give no such right; and again, such wrongs as trespass to lands, seduction, and slander are merely civil injuries and not crimes. In general, nothing is a crime unless plainly forbidden by law: but a common law court may in its discretion pronounce to be a crime any act which is productive of great public mischief or grave moral scandal. In the English law the traditional classification of crimes is into treason, felonies, and misdemeanours. They are also classified according as they are punishable: (1) On indictment or information, or (2) on summary conviction before a justice or justices of the peace without the intervention of a jury. A broad classification is frequently made between crimes and offences, the latter embracing non-indictable wrongs punishable either summarily or by the infliction of a penalty, the former being restricted to acts punishable on indictment; but otherwise the two terms are interchangeable. All treasons, felonies, misdemeanours, misprisions (*q.v.*) of treason or felony, and attempts to commit any of these crimes are indictable. In general, it may be said that felonies comprise the more serious, and misdemeanours the less serious, crimes. The distinction, however, is merely historical, a felony (literally the price of a fief) in feudal times signifying any offence which was visited with forfeiture by the accused of his fief or land to the lord of the fee. Later the term was applied also to acts which resulted in forfeiture of goods. In Blackstone's time capital punishment (*q.v.*) usually followed on a conviction for felony, except in cases of petty larceny or wounding. An act is also a felony where so described by the statute creating the offence, but most felonies are so at common law. Felonies and misdemeanours differ mainly in respect of their consequences: a suspected felon may be arrested without a warrant under certain conditions, but not so a misdemeanant; misdemeanours are triable upon indictment, inquisition or information, but felonies are not triable on information; in the case of felonies the person aggrieved should vindicate the public wrong by prosecuting the felon before beginning any civil action that may be open to him, but in misdemeanours there is no such obligation on him; and a person charged with misdemeanour may be released on bail (*q.v.*), but not so a

person accused of felony. The distinction between felony and misdemeanour is unknown in the C. L. of Scotland. It is a rule of the English C. L. that no one is a criminal unless he has a guilty mind (*nemo est reus nisi meus sit reus*). Motive is immaterial. Criminal intention, a guilty mind, and malice are all synonymous in C. L., and indicate, not ill-will against a particular person, but that a wrongful act has been done intentionally and without just cause or excuse. Malice is an essential element except where an act is expressly declared to be criminal without proof of guilty intention. These exceptions comprise mainly public nuisances, cases of adulteration of tobacco, adulteration of food and drugs, offences against the Merchandise Marks Acts, and offences relating to the sale of intoxicating liquors. Such acts can hardly be called criminal in the truest sense, but they are criminally punishable on grounds of public policy. An attempt to commit a crime is punishable if the act done is a sufficient indication of the intention to commit the full offence. No person may be excused for a criminal act unless he can be presumed not to have realised the consequences of what he was doing. Infants under seven years of age are presumed to be absolutely incapable of crime. Children between seven and fourteen years of age are only punishable for a crime where there is evidence of guilty knowledge or mischievous discretion. Hales' *Pleas of the Crown* records the fact that a boy of ten was hanged for murder (Spigurnel's case). Insanity, like infancy, is deemed incompatible with criminal responsibility, but the presumption of sanity is only rebuttable by proof that the accused at the time of committing the act was labouring under such a defect of reason, from disease of the mind, as not to know the nature and quality of the act he was doing, or if he did know it, that he did not know he was doing what was wrong (see CRIMINOLOGY). Where the insanity is partial, i.e. where the delusions extend to one or more matters only, the test of responsibility depends on whether, assuming the facts to be as the accused in his delusion supposed them, the act was nevertheless contrary to the law, and also whether the accused knew the act was contrary to the law. Drunkenness is no excuse for crime, although it may be taken into account in considering the motive or intent with which the accused committed the act; and chronic drunkenness, resulting in a degree of madness temporary or permanent, may render the accused

criminally irresponsible. But though insanity, whether caused by drunkenness or otherwise, is a good defence, the test of criminal responsibility in the case of drunkenness is not the same as for insanity, and where the defence sets up only drunkenness and not insanity, the judge will not direct the jury on the question whether, even if the prisoner knew what he was about, he knew that he was acting unlawfully. The House of Lords confirmed these principles in a general review of the case-law on the subject in the case of *R. v. Beard* in 1920 and also laid it down that evidence of drunkenness which makes the prisoner incapable of forming the specific intent essential as an ingredient in the crime with which he is charged should be considered together with the other facts proved so as to determine whether he had such intent. Ignorance of the C. L. is no excuse for a crime. A *bona fide* mistake of fact will excuse if the original intention was lawful. In many cases of felony, if a wife commits the crime in the presence of her husband, the law presumes that she acts under his coercion. The presumption is rebuttable on proof that she was the leading spirit in the transaction. The law is uncertain in the case of a married woman's misdemeanours, but the general tendency now is to apply the same rule as in felonies. Persons committing acts otherwise criminal, under the physical compulsion of another, or as a consequence of terror greater than that inspired by the law, are, in general, irresponsible for such acts. An accessory before the fact is one who, though absent at the time of the felony committed, yet procures, consents, commands, or abets another to commit a felony. There can be no accessories in treason or misdemeanour, all persons participating being principal offenders. An accessory after the fact is one who, knowing a felony has been committed by another, receives, relieves, comforts, or assists the felon (see BREACH). Crimes are generally classified as follows: 1. Offences of a public nature, including (a) crimes against the sovereign and the government, e.g. treason, sedition, and coinage offences; (b) against religion, e.g. blasphemy (*q.v.*); (c) against public justice, e.g. perjury, champerty (*q.v.*), maintenance (*q.v.*), breach of prison (see BREACH), and compounding (*q.v.*) offences; (d) against the public peace, e.g. riots, libels, challenge to fight; (e) against public trade, morals, health, and good order, e.g. smuggling, bigamy, indecency, adulteration, and keeping gaming houses. 2. Offences

against the persons or property of individuals, including, as to the person, murder and manslaughter, rape and offences under the Criminal Law Amendment Act, 1885, concealment of birth, and assaults of various kinds; and as to property, arson, burglary, embezzlement, forgery, housebreaking, larceny, obtaining by false pretences and receiving stolen goods. The Prevention of Crime Act, 1908, provides that a person who is convicted of being an habitual criminal may be sentenced to a term of not more than six years' preventive detention in addition to the sentence for the crime wherewith he is then charged. An 'habitual criminal' is defined to be a person who, after sentence for the crime with which he is charged has been pronounced, is found by the jury either (a) since attaining the age of sixteen to have been at least three times previously convicted and to have been leading persistently a dishonest or criminal life, or (b) to have been previously convicted of being an habitual criminal. Besides capital punishment (*q.v.*), which may be awarded only in cases of high treason, murder, piracy with violence, and setting fire to His Majesty's ships, dockyards, etc., punishment in England may consist of penal servitude for not less than three years, imprisonment with or without hard labour for not more than two years, and fines. Whipping is forbidden, except in certain special cases such as male garroters, or male incorrigible rogues; but youthful offenders may be sentenced to receive twelve strokes with a birch rod. Children under sixteen may be sent to a reformatory or industrial school (*see* CHILDREN ACT, 1908). Since the passing of the Criminal Appeal Act, 1907, a person convicted of an offence may appeal against either his conviction or sentence, or both, whether on a question of fact or law, or both (*see* CROWN CASES RESERVED, COURT FOR). The Crown through the Home Secretary may exercise the prerogative of pardon, or relieve a person convicted of murder by commuting the death sentence for a term of imprisonment. Courts of criminal jurisdiction in England include the Central Criminal Court (*q.v.*), assize courts, county or quarter sessions (*see* COUNTY SESSIONS), and petty sessional courts. The King's Bench Division has jurisdiction in all crimes, but rarely exercises it. Parliament is a high court for certain trials, the proceedings being either by impeachment or, in the case of trial of a peer, by indictment before the House of Lords. The Scots C. L. in its essentials

closely approximates to the English, such differences as exist being mainly in the terminology which is borrowed directly from the civil law, although often applied with a different shade of meaning, *e.g.* criminal intent or malice is known as *dole* (Lat. *dolus*, fraud, deceit); and small petty offences were generally called *delicts*. By the Scots law no private party except the person injured or his next of kin can accuse criminally; and to enable him to do so he is required to apply to the Lord Advocate to obtain his concurrence to the prosecution with a right of appeal to the High Court of Justiciary in case of the Lord Advocate's refusal. Archbold's *Criminal Pleading, Evidence, and Practice*; Russell, *On Crimes*; Kenny, *Outlines of Criminal Law*; Harris, *Principles of the Criminal Law*; Stephen's *History and Digest of the Criminal Law*; Erskine's *Institute of Scotch Law*.

United States.—The principles underlying the C. L. of the U.S.A. are those of the Eng. common law. Most of the maxims familiar to the student of Eng. criminal law obtain in the American system, *e.g.* the maxim, *neminem ignorantia eorum quae quis scire tenetur excusat*, i.e. every person is bound and is presumed to know the law at his peril. The criminal law, whether common or statute, is imperative with reference to the conduct of individuals; so that where a statute forbids or commands anything to be done, any act of omission or commission contrary to the prohibition or command is an offence at common law and indictable in the U.S.A. as in England. An offence which may be the subject of criminal procedure is defined in the classic American authorities as an act committed or omitted in violation of a public law either forbidding or commanding it (144 U.S. 677). As respects the sources of American criminal law, it is an accepted principle that when a statute punishes a crime by its legal designation, without enumerating the acts which constitute it, then it is necessary to resort to the common law for a definition of the crime with its distinctions and qualifications; hence if an act is made criminal, but no mode of prosecution is directed or no punishment provided, the common law comes into operation, prescribing the mode by prosecution or by indictment. This is the common law of England, but might now be properly called the common law of the U.S.A. (Baldwin's *Century Edition of Bowler's Law Dictionary*, 1926). Many if not all the cardinal principles of the Eng.

and American systems of criminal law are identical, *e.g.* that everyone is presumed to be innocent till the contrary is shown; that no person can be brought to trial until a grand jury has good reason to hold him for trial; that the question of guilt is to be determined without reference to a prisoner's general character; that the prisoner cannot be required to criminate himself; but this principle is subject to the position that where the prisoner testifies in his own behalf he may be cross-examined like any other witness, just as in Eng. criminal procedure under the Criminal Evidence Act, 1898. (*Consult* Joel Prentiss, *Commentaries on the Criminal Law*, 1882.) But though the different States owe their law to the one common source, the common law of England, it cannot be said that one *corpus juris* of criminal law prevails in the U.S.A. as a whole; for in the administration of the criminal law each State has its exclusive jurisdiction as a sovereign independent community; each with its own judges and its own separate procedure, subject always to the overriding restrictions imposed by the American Constitution. As in England, the division into felonies and misdemeanours prevails, but by the operation of Statute Law it occasionally happens that a crime may be a felony in one State and a misdemeanour in another; but generally, the more serious crimes are felonies. Forfeiture of property for felony was abolished in the U.S.A. before that reform was made in England. In the various State codes or systems of Criminal Law, crimes are further divided into the usual categories of crimes against the person and against property; other main categories being crimes against the public peace (*e.g.* riots), against trade (*e.g.* offences against the prohibition laws), against decency, against the law of nations (*e.g.* piracy). In murder, unlike the simplicity of the Eng. common law definition, there are various 'degrees' of culpable homicide (*see* under MURDER); while as regards treason, the sole kinds recognised in the U.S.A. are levying war against the State or adhering to its enemies. As to the ingredients of any particular crime, the general principles are the same in the U.S.A. and for the different States as in other matured legal systems; and the same observation applies to the analysis of criminal responsibility, *e.g.* the rule in *McNaughten's case* on insanity as a defence (*see* McNAUGHTEN'S CASE), and again as to the validity or otherwise of drunkenness as a

defence. In one vital particular criminal procedure in the U.S.A. is in advance of Eng. procedure in that a prosecution for a crime in which there is no question of vindicating the public wrong proceeding are initiated by a State official variously styled the State Attorney or District Attorney, who takes the place of the private prosecutor in England. The summary jurisdiction in the U.S.A. follows much the same course as in England, and similarly all the stages of procedure from grand to petty jury. Again as in England, there are juvenile courts for the trial or correction of young children or young persons. As regards appeal the accused can, in all the States, petition the trial court for a new trial, which, however, will be granted only if the court thinks the conviction cannot stand in law. Generally, too, the accused may appeal to a court of higher instance both on a question of law and on a question of fact; but there is this cardinal difference from the practice that prevails in the Eng. Court of Criminal Appeal, that the American court cannot hear new evidence nor vary the sentence, but is restricted to either quashing the conviction or remitting the case for re-trial.

Criminology is that part of sociology which relates to the morbid psychology of criminals. It is now generally termed 'criminal anthropology.' It investigates the physical and psychical peculiarities observable in criminals, and the practical results of this more searching inquiry into the genesis of crime are to be seen in the changed methods of prison discipline, the careful treatment of juvenile criminals, and the preventive detention of 'habitual criminals' (*see* CRIMINAL LAW). The science of C. is comparatively new, and the impetus given to its study is due to the work of Lombroso. It is true that long before Lombroso produced his celebrated and highly controversial *L'homo delinquente* some form of classification of criminals had been attempted, various definitions of 'moral insanity' propounded, and a greater measure of sympathetic consideration given to the life of a criminal than when most crimes were punishable by death and imprisonment. But there was a want of precision in thought and much misleading generalisation. Attention was directed almost solely to theories of punishment. Without inquiry into the pathology of crime it seems merely to have been assumed that the criminal in some manner ill-defined was to be 'improved' at all costs; with that philanthropic object in

view treatment began, as it were, at the wrong end; societies influenced by the work of Howard sentimentalising over the hard lot of the prisoner and expending every effort in making prison life as comfortable as circumstances would permit. Something in the nature of a moral astringent was required if social reform in this direction was to be more than a name; and such a healthy corrective was more than forthcoming in the teaching of Lombroso. Having for a considerable time closely examined all classes of criminals, Lombroso in 1876 published his remarkable work setting forth the theory of the existence of an unmistakable criminal type: a type of congenital criminal whose instinctive propensity to criminal habits was easily discernible by various peculiarities of physiognomy and physical conformation. Broadly speaking, criminologists of the Lombroso school infer the following physical characteristics among criminals generally, although not all are displayed by the same individual: small and large heads occur with extraordinary frequency, middle-sized heads being comparatively deficient. Thieves have small and murderers large heads. The shape of the head is remarkable for abnormality or irregularity. Defective conditions often occur in the cerebral region. The eyes are feline and cold. The lower part of the face has a heavy appearance, the weight of the lower jaw being much above the average, and the forehead is receding. The ears are large, prominent, and outstanding, with other abnormalities. Wrinkles are strongly marked, and occur frequently in the young. The hair of the head is abundant, but the beard scanty. Left-handedness is common, and not infrequently criminals are ambidextrous. A curious exception is admitted in the case of highwaymen. This left-handedness is believed to correspond with the greater sensory obtuseness observable on the right side among criminals. The respiratory apparatus is deficient; pigeon-breasts, imperfectly developed chests, and stooping shoulders are common. There is very often cardiac trouble and general muscular peculiarities. Among sexual offenders the tendon reflexes are frequently absent. But swindlers were noted to possess much greater sensibility than either murderers or thieves. There is also obtuseness in the sense of taste, especially among women. Sexual precocity in all forms is excessive. Heredity plays a strong part. Numbers of the parents of criminals were found to have died from cerebro-spinal diseases and phthisis; many were of

inherited neurotic tendency, especially in the direction of insanity and epilepsy. Alcoholism in either of the parents was found to be frequently associated with criminality in the offspring. Hysteria was not uncommon in the mothers of criminals. The psychical peculiarities observed by criminologists include some very remarkable emotional characteristics. Their morbid vanity was very marked, a fact which accounts for an otherwise inexplicable omission to take proper precautions against leaving clues. Capital trials have an irresistible attraction for many criminals. Intemperate and gambling habits are frequent—indeed, form a stimulus to wake them from an habitual lethargy; but criminals are also capable of short periods of great activity. They often display religious or superstitious sentiments, but nothing in the way of free-thinking, a fact apparently due to their constitutional inertia. Lombroso noted that some were remarkable for spontaneous outbursts of excitability. These views have by no means found universal favour. One objection is that the above peculiarities may often be observed in perfectly honest and kindly people. There is some ground, too, for supposing that Lombroso was generalising from a few particular instances. In England there was a small group colloquially termed the 'Mad doctors' who supported the Criminal Anthropologist School; but for the most part the safer doctrine of responsibility for crime is embraced. Among Italian thinkers the objections of Professor Lucchini are of especial note. Mr. Tallack, formerly secretary of the Howard Association, London, justly observes, that while the 'mad doctors' and anthropologists 'have been warranted by the facts of the hereditary tendencies, the functions, and the environment of many criminals, in claiming for such circumstances a large amount of just consideration, yet they have on the other hand too often ignored the absolute and essential right of the community to be *effectually protected from the criminal, whether insane or not.*' It may be doubted, however, whether Lombroso's theory of irresponsibility implies insanity in the generally accepted senses of that word. On the contrary, most criminologists in classifying criminals and enumerating their physical and psychical characteristics or abnormalities, draw a clear distinction between the insane criminal and those not insane. Lombroso himself, however, was strongly opposed to any overdue lenience of treatment, and deprecated the hotel-like com-

forts of many Italian prisons. Logically, however, if Lombroso's theory of instinctive criminality be true, no theory of punishment can be justified that aims at retribution or vindication, for a man can hardly be held responsible for acts he cannot help committing. The older school of mental pathologists generally classed the congenitally criminal among the morally insane. Dr. Prichard defined *moral insanity* as consisting in a morbid perversion of the natural feelings, affections, inclinations, temper, habits, and moral dispositions, without any notable lesion of the intellect, or knowing and reasoning faculties, and particularly without any maniacal hallucinations; and observed that no such disorder had been recognised in the English courts of judicature, or even admitted in general by English medical writers. The idea of such a moral state was first advanced by Pinel, who called it *manie sans délire*, and considered that persons labouring under it appeared to be governed by a sort of instinctive madness, as if the affections alone had suffered injury. Medicine and law have ever been at variance over theories of responsibility, and nowhere does this variance become wider than in the different views of the moral effect of delusions. Medicine, it may be said, generally adopts the view that a single delusion implies a disease of the brain in its entirety; the law abstains from any such pathological inquiry and imputes criminal responsibility wherever it can prove, not an abstract conception of right from wrong, but the capacity of knowing right from wrong with reference to the circumstances of any particular case (see CRIMINAL LAW). The term *moral insanity* is not always used in the same sense by the authorities. Dr. Hack Tuke calls it *emotional insanity*, and refers to an exalted form of it which tends to pass into delusional insanity, and other forms which assume a destructive character, such as homicidal mania. But he observes that it is popularly employed by medical men in the limited sense of perversion of the *moral nature* by disease or defect without intellectual disturbance and without any necessary association with irresistible impulses; the '*ego*' being perverted through an abnormal condition of the cerebral organisation, constitutional or acquired.' In this limited sense the 'morally insane' stand in the unfortunate position that the weight of medical opinion imputes disease in some shape or form, while the law, looking solely to the assumed unimpaired state of the intellectual faculties, imputes responsibility. There is, however,

a considerable amount of latent ambiguity in the adopted classifications of criminals. The admission by Lombroso and others, that instinctive criminality may be identified with moral insanity is tantamount to an admission of irresponsibility, an admission which Lombroso himself was, of course, at no pains to gainsay. The importance of this identification removes the necessity of considering the metaphysical difficulties offered by the doctrine of free will; for if the will is diseased both its freedom and determinism by motives are irrelevant. Lombroso's *delinquente nato*, or congenital criminal, on any classification of criminals, forms but a small proportion of the aggregate of criminals or criminal types, although it seems doubtful whether he did not include under one comprehensive type—instinctive criminal—all who displayed in varying degrees some or most of the physical and psychical characteristics above enumerated. Mr. Havelock Ellis points out that the instinctive criminals do, however, constitute the most serious part of the prison population, in that they reveal criminality in its most emphatic shape, and present those signs of abnormality, degeneracy or disease, physical and psychical, which are to be found in a less well-marked form in other types or classes of criminals. These other types or classes are somewhat loosely and unscientifically classified into (a) criminals by passion, (b) occasional criminals, (c) habitual or professional criminals, (d) insane criminals. This so-called clinical classification is faulty, in that it co-ordinates types evolved from subjective considerations with classes that appear to be types of criminals by reason only of the objective consideration that they happen to commit a criminal act. Moreover, although in fact most of these classes display in more or less strongly marked form the physical and psychical peculiarities already enumerated, it has to be conceded that the person who commits what in French law is called a *crime passionnelle*, is not usually characterised by any abnormality or degeneracy; nor is there with him any question of hereditary transmission of moral or physical peculiarities; nor of atavistic or recurring faults. Again, no better reason for the inclusion of the 'occasional' criminal can be offered than that he betrays an inability to resist any opportunity of crime that presents itself, from which it is inferred by criminologists that he is cursed with some original weakness of organisation. Under such a category as this, a victim to chronic unemploy-

ment who never let slip an opportunity of stealing to provide himself or his family with the necessities of life, would perforce have to be included, and unjustly, unless, of course, he also displayed in some marked degree the physical or psychological peculiarities that have suggested the whole science of criminal anthropology. The 'habitual' or 'professional' criminals are by Professor Enrico Ferri divided into two classes, the weaker and degenerate who commit crime helplessly, and the more strictly professional criminal who deliberately follows a career of crime and shirks no difficulties afforded by hazardous enterprises. These, it is conceded, do not usually show any marked physical or psychological abnormality. This concession seems, by excluding the veritable aristocrats of crime, to deprive the theory of the criminal anthropologists of half its force. The obvious commentary on the attempt to relate, more or less closely, all or most classes of criminals to types of specified abnormal peculiarities is that the criminologists, having found an undoubted type in the 'morally insane' exhibiting in a well-marked degree peculiarities of character and anatomy, attempt to fasten such peculiarities in greater or less degree upon all who happen to commit a crime. The last class—the insane—comprises those whose intellectual faculties are unquestionably impaired. Insanity in the technical sense according to Esquirol, and most subsequent writers, comprises mania where hallucination extends to all manner of objects, monomania where it is confined to one or a small number of objects, dementia where the subject is rendered incapable of reasoning in consequence of some functional cerebral disorder not congenital, and idiotism connoting a congenital malformation in the brain. Admittedly, insanity is not easy to define, but even the law must exculpate those falling within the above classes who commit crime except, in the case of the monomaniac, where a particular knowledge of right and wrong is believed to be capable of proof. The result of an attempt to classify criminals seems to be that the 'instinctive' criminals of the Italian school, at least in so far as identified with the 'morally insane' in the modern and limited acceptance of that term, so closely approximate to the last or technically insane class as to lead to the conclusion that they are irresponsible on the broad ground of technical insanity alone. It is true that the criminologist is not necessarily concerned with the question of responsibility: his work may well

end with the mere psychological and physiological analysis of his subject. But the exclusion of by far the greater number of the prison population from any conclusive suspicion of abnormality—especially the 'habitual' or 'professional' criminal—suggests the natural inference that there is no truly instinctive criminal type at all. In fact, the value of cranial measurements, etc., depends on the recognition that these abnormalities are the result rather than the cause of moral delinquency. The chief glory of Lombroso and his school, however, is their insistence that C. must concern itself with the individual. Their study of the biological and social cause of criminality lifted C. out of the traditions of the classical school which treated crime as something to be analysed only from the point of view of the penologist, and C. became instead a positive social science. By an extension and not a refutation of Lombroso's work, Garofalo, Lombroso's great successor, and other criminologists of the modern positive school examine not only the physiology, but especially the mind and the psychic impulses of the criminal. They are concerned above all with the underlying motive of criminality, and they discover it in the mental and emotional condition of the criminal. It is shown that there is no sharp distinction between sanity and insanity, and as a result of the researches of Freud (*q.v.*) and his followers the hypothesis of the unconscious mind is well established. The causation of a criminal act can be traced back through the unconscious by the psycho-analytic method which Freud initiated. The morally insane criminal becomes therefore more answerable for his acts and yet at the same time less responsible, as his real motives often lie outside his consciousness. But psychological C. dismisses any theory of punishment and is not concerned with retribution. The aim of psychoanalysis is therapeutic, and for this reason one branch of C. extends beyond the identification and capture of the criminal to the treatment of him in detention. The criminal is regarded as having a defective sense of citizenship, and it becomes the business of prison authorities aided by a psychiatrist to cure this defect. This theory of 'punishment' is extended to include even murderers. The conviction seems to grow ever stronger that poverty or other adverse environment has far more to do with habitual crime than innate propensity, and to that end punishment is directed ever further along

the lines of correction or reformation, and even further removed from the traditions of a *lex talionis*, or any other form of punishment, the dominant element of which is retribution.

Authorities.—Lombroso, *L'Uomo delinquente*; Enrico Ferri, *Sociologie Crim.*, trans. 1905; Hack Tuke, *Dictionary of Psychological Medicine*; Tallack, *Penological and Preventive Principles*; Bucknill and Tuke, *Psychological Medicine*; Beck, *Medical Jurisprudence*; E. H. Sutherland, *Criminology*; H. Gross, *Criminal Psychology*; J. L. Gillin, *Criminology and Penology*; B. L. Brazol, *Elements of Crime*; M. G. Schlapp and E. H. Smith, *New Criminology*; A. F. Brockway, *A New Way with Crime*.

Crimp, one who decoys men into the naval or military (but especially naval) service. Apparently, the usual method employed is to ply a man with drink and then induce him to sign articles of service. Section 111 of the Merchant Shipping Act, 1894, provides that only a person who holds a licence from the Board of Trade, or who is the owner or master, or mate of a ship, or is the servant and in the constant employment of the owner of a ship, or is a superintendent, may engage a seaman to be entered on board any ship in the United Kingdom. There is a further provision that no one may receive any seaman to be so entered if he knows that the seaman has been engaged in contravention of the Act. The penalty is a fine not exceeding £5 for each offence.

Crinan Canal, in Argyllshire, Scotland. It connects Crinan Loch with Jura Sound at Ardrishaig. It is about 9 m. long and 24 ft. broad, and its construction was completed in 1801.

Crinoidea (Gk. *κρίνον*, lily; *-ῖδος*, form), a beautiful class of pelmatozoan echinoderms containing about 400 living species and many fossil forms; the extinct crinoids are usually spoken of as *stone-lilies*, and the existing species as *sea-lilies*. In general structure they resemble other echinoderms, such as the starfishes, but they have many features peculiar to themselves. Some of the best-known species are *Antedon* (or *Comatula*) *rosacea*, the feather-star, *Rhizocrinus lofotensis*, which occurs at great depths of the Atlantic, and *Pentacrinus asterius*, which is found in the Pacific.

Crinoline (Lat. *crinis*), the name given to a very coarse kind of material, originally made of horsehair, and used by women for expanding their skirts. The first structure of this sort was the farthingale of Elizabethan times, and this served the same purpose as the C. The hoop petticoat was the next

device, used in the early part of the eighteenth century, and unlike its predecessor fell in gathers from the waist. The C., often made of wire, which was at its height about the middle of the nineteenth century, also extended the skirt enormously. About the year 1866, however, people began to see the absurdity of such a fashion, and its popularity declined rapidly from that time.



CRINOLINE

(Early nineteenth century)

Crinum, a genus of *Amaryllidaceae*, contains nearly one hundred handsome plants, many of which form the greatest ornaments of our gardens. They are naturally tropical and subtropical, but they will grow well in England. *C. Asiaticum*, the poison bulb, is a native of the E. Indies; its bulbs are powerfully emetic and are used in Hindustan to produce vomiting when poison has been taken. *C. amabile* is another beautiful native of the E. Indies.

Cripple Creek, the county town of Teller co., Colorado, U.S.A. It lies on the Midland Terminal Railway and also on the Florence and Cripple Creek Railway. This town, which stands at an elevation of 9800 ft., is the centre of a large gold mining district which has developed very much of late years and includes other towns which are situated near to C. C., among them the town of Victor. Pop. 1427.

Cripples. Where crippling has not been caused by accident or as an effect of war, it usually has its origin in poliomyelitis or infantile paralysis, in tuberculosis, or in some

congenital disease. Welfare centres and clinics deal to a certain extent with the infant cripples, but it is not until they have attained school age that crippled children receive due care.

In 1890 Mrs. Humphry Ward made provision for cripples in her settlement in Tavistock Place, London, being a pioneer in this matter. Good work has since been performed by Mrs. Grace Kimmins, wife of the late Chief Inspector of the L.C.C. Education Dept. As founder of the Heritage Schools of Arts and Crafts for Crippled Boys and Girls (1904) at Chalvey, Sussex, she has trained thousands of children from three to sixteen years of age to become self-reliant citizens, in many cases able to earn their own livelihood by such work as cabinet-making, tailoring, shoemaking or embroidery. In 1908 the Lord Mayor Treloar Cripples' Hospital and College was founded by Sir Wm. Treloar at Alton and Hayling Island, to afford curative treatment for children up to twelve years of age suffering from tuberculous diseases of bones or joints, and technical education for boys from fourteen to eighteen years of age. The Cripples' Home and Industrial School at Winchmore Hill trains girls over eight years of age in dressmaking, while the Fine Needlework Association for Invalid Women and Girls, in Kensington, London, employs embroidresses and needleworkers above the age of fifteen years. The Stratford-on-Avon Weaving School provides a means of whole or partial support for crippled girls. London, Bristol, Oswestry, and Pinner have all large Orthopædic Hospitals, and the Invalid Children's Aid Association (1888), 117 Piccadilly, W., has branches throughout London to help the suffering children. In 1920 a bureau of information, the Central Council for the Care of Cripples, was established at 117 Piccadilly. The L.C.C. provides fifteen scholarships yearly to crippled children between the age of fourteen and seventeen years. In Great Britain, the Invalid Children's Aid Association and the Central Council for the Care of Cripples have had considerable influence on progress in local welfare. Educational and propaganda work is done by both societies to inspire practical efforts in solving problems relating to persons handicapped by physical defects. The aim of these societies is to secure co-operation for the establishment all over the kingdom of a central open-air hospital, supported by a chain of clinics. Since

1923 four new orthopædic hospital schools have been established by the Central Council, which is now a federation of all orthopædic interests, lay and medical, public and voluntary.

Crises (commercial or financial). Broadly speaking a commercial crisis is due to an over-extension of national credit (*q.v.*). John Stuart Mill, in his analysis of the phenomena of a C., strikes the true note in the predisposing cause when he speaks of the inclination of the mercantile public to increase their demand for commodities by making use of all or much of their credit as a purchasing power in the hope of making a profit. Various theories have been propounded to account for the apparent periodicity of C., but in this connection this periodicity is only attained by co-ordinating both greater and lesser C., and by ignoring the fact that the greater scientific precision and prudence of modern commercial dealings tend to increase the intervals between commercial C. and to lessen their gravity. It seems unnecessary to look further for the psychological explanation of recurrent C. than in the facts of human nature itself. The desire to increase one's wealth by enormous profits on a comparatively small capital outlay is one which owes its origin and strength to the rise and development of joint stock companies. The public almost loses sight of the tremendous historical lesson of the South Sea Bubble. A boom in a particular commodity will, if cleverly organised, attract public subscriptions to an almost unlimited extent, regardless of the facts of political economy. The strain on credit due to the over issue of paper money consequent on accommodation given by banking houses to such speculative companies soon leads to a reaction and a demand for the liquidation of liabilities in cash. Panic, however, in the sense of a run on banks is not fortunately a necessary corollary to a C. Public confidence in its credit may be restored by various means, such as the authorised issue by the Bank of England of notes for a lower amount or the suspension of the Bank Charter Act; and such steadying influences have often operated to avert disaster. Apart from predisposing causes, a commercial C., according to Mill, appears to exhibit these phenomena: a great number of merchants and traders more or less simultaneously apprehend that they will have some difficulty in meeting their engagements, owing to the recoil of prices after they have been raised by an

intense spirit of speculation embracing many commodities. The exciting cause of this spirit of speculation is to be found in some accident, such as the opening of a new foreign market, the promise of a new field of supply, to meet indications of a short supply of great articles of commerce. Prices rise and the holders of stock or shares realise, or appear to be able to realise, huge gains. Speculation, aggravated by the mushroom growth of rival concerns, goes far beyond what might have justified the original expectation of a rise of prices, and then extends itself to other articles. The prices of these latter rise like the other articles, involving a great extension of credit. People at once give as well as take credit more freely than in normal times. A reaction sets in and prices fall, not merely to a normal level, but far below, with the result that where before credit was practically illimitable, even firms of established repute are unable to obtain their customary credit. In extreme cases unreasonable panic may ensue, money being borrowed at exorbitant rates of interest, and sales of goods made for absurdly low cash payments. Mill points out that it is not universally true that the contraction of credit characteristic of a C. must have been preceded by an irrational extension of it. The C. of 1847, for example, was not caused in the manner above described, but by a combination of circumstances tending to reduce the available supply of capital in the loan market. Those circumstances were the high price of cotton and an unprecedented importation of food necessitating considerable foreign payments, the continual demands on circulating capital (*q.v.*) by railway calls, and the loan transactions of railway companies, for conversion into fixed capital. In the annals of our commercial history the C. arising out of the failure of the South Sea Company stands out as the greatest financial disaster of all. But the draining of the country's capital to carry on the war against the armies of the ambitious Louis XIV. crippled the national resources, and brought many of the richest families to absolute penury. This C. was the more notable for the reason that it occasioned the rise of the Bank of England through the good offices of Paterson, who instituted its progenitor, the Bank of Issue, for the purpose of issuing notes covered (*see COVER*) by an equal amount of government securities. The whole banking system, indeed, springs from this source. Other 'bubble' companies there have been subsequently, but none to approach

the South Sea Company in magnitude of disastrous consequences. The C. of 1825, which followed on over-speculation, was due primarily to the rapid increase of the number of banks, no village of any pretensions being without one. The accommodation in the way of discounts to small traders led to absolutely unrestricted issues of paper money in the country banks. The currency as a consequence became redundant, and the Bank of England was unable to meet the heavy drain on its bullion when the country banks began to endeavour to resume cash payments. The result was a run on all the banks as soon as it was realised that they could obtain no accommodation in London. There was a C. in 1836, following on the collapse of abortive speculative schemes, with results nearly as disastrous as in 1825. The next C. appears to have followed on the great railway mania in 1845. It is recorded that at this period the railways completed, in course of construction, or projected, represented 1263 companies, with a total capital invested of £113,612,018, and total liabilities £590,447,490. The damage to the public credit by this fever of speculation in railway schemes was further aggravated in 1847 by the failure of the potato crop in Ireland, which involved an estimated loss of some thirteen millions sterling. The explosion of the ensuing speculation in Indian corn brought about a fall in price and the ruin of some eighteen colossal business houses of London and the provinces, with liabilities exceeding one and a half million. The next great C. was in 1857, a curious feature being that up to this time C. seem generally to have followed one another at intervals of ten years. The C. of 1857 was remarkable for the fall of the famous house of Overend, Gurney & Co., in consequence of suspicion breathed against its members in connection with certain shady transactions relative to the 'coal warrant swindles.' Their liabilities were over £11,000,000. Since this collapse the commercial world has been startled at intervals by sundry disasters, private failures, and the collapse of limited liability companies, *e.g.* the failure of the Royal Bank of Liverpool in 1867, and the City of Glasgow Bank in 1878. A notable financial crisis in the U.S.A. occurred in 1907 and was followed by a Bill enabling banks to issue currency on security of other than government bonds. The failure of the Birkbeck Bank was redeemed by the fact that the society was able at once to pay 10s. in the £ and hold out hope of future payments. For

some years before the outbreak of the Great War, academic discussions had taken place with regard to the adequacy of the gold reserve, and there were many who predicted that in the event of a sudden rush on the banks, gold reserves in the Bank of England would be insufficient to meet requirements. These prophets little realised the stern test to which the whole system of British finance would be put by the events which followed so quickly upon the declaration of war by Great Britain on Aug. 4, 1914. Towards the end of July the London markets had been somewhat depressed by the uncertain trend of events on the continent and by the state of affairs in Ireland. English finance houses adopted in the circumstances a careful policy and loans which fell due about that time were not renewed. This, of course, caused a brisk and persistent demand for sterling abroad to meet liabilities, and the English pound rose in consequence. But the political tension was not confined to England and there was a sustained effort to sell securities wherever they could be sold. Ready money was desired above all things. The London Stock Exchange closed its doors on July 31; to have remained open longer would have been to invite disaster, as London would have been flooded with securities and the stock of English gold would have been considerably diminished. The Bank of England became practically the only source from which money could be borrowed, and it was forced to raise its discount rate from 4% to 8% on July 31, and to 10% on Aug. 1. The Bank Holiday was extended by Royal Proclamation from Aug. 4 to Aug. 6. The Bank of England was indemnified by a letter from the Gov. against liability for the issue of notes in excess of the limits imposed by the Act of 1844. This cover was, however, only necessary for a few days. The Government decided to issue £1 and 10s. currency notes and an Act known as the Currency and Bank Notes Act was passed on Aug. 6, and currency notes were actually in use the next day (see under CURRENCY). By this timely measure the gold reserve was husbanded and the need for currency which had been felt during the extended bank holiday had been supplied. (See Kirkaldy, *British Finance, 1914-1921*; Mill, *Principles of Political Economy*; Burnley, *Romance of Modern Industry*.)

Crispi, Francesco (1819-1901), an Italian statesman, one of the great founders of Italian unity, was b. in

Sicily. He was an advocate at Naples when the Palermo revolt broke out in 1848. Taking a leading part in this, he had to escape to Piedmont, where he earned a scanty living as journalist. Expelled in 1853 as a republican conspirator he fled to France, was again expelled, and joined Mazzini in London. In 1859 he returned to Sicily in disguise to foment rebellion against the Neapolitan government, and in 1860 assisted Garibaldi in the expedition which swept the Bourbons out of Southern Italy. He was appointed to important posts, first in Sicily and afterwards in Naples, but when Victor Emmanuel's army arrived and the Two Sicilies were annexed, Garibaldi and C. found their occupations gone. The latter entered the parliament at Turin, and distinguished himself as an ardent republican; but in 1864, recognising that only the monarchy could unify Italy, he became a supporter of Victor Emmanuel. In 1867, on the occasion of Garibaldi's rash attack on the papal states, C., foreseeing that the movement would certainly fail and injure the national cause, tried to check his former leader, but without success; the catastrophe came, and led to the retention of a French garrison at Civita Vecchia. During the Franco-German War, however, this was withdrawn, and C. with other patriots practically forced the Italian government to occupy Rome. When the Liberals came into power (1876), C. became president of the Chamber, and in 1877 went on an important political mission to London, Paris, and Berlin, holding negotiations which prepared the way for the formal establishment of the new kingdom in 1878, when on the death of Victor Emmanuel of Savoy his son was crowned as Humbert I. of Italy. When Pope Pius IX. d. in 1879 the Sacred College proposed holding their electoral conclave abroad, but C. persuaded them to remain in Rome, promising absolute freedom and protection, adding, however, that if they went the Vatican would be occupied by the state. They decided to remain, and a dangerous problem for the new kingdom was thus solved. Soon after this C.'s opponents brought against him a charge of bigamy, which, though not legally substantiated, as his first marriage was declared invalid, yet so affected his reputation that he was out of office for some years; but returning as premier in 1887, he took up a strong foreign policy, warmly promoting the views of the Triple Alliance, and treating France with decided coldness. His party was overthrown in 1891, but

in 1894 he was again premier, and an anarchist attempt on his life told greatly in his favour; but in 1895 the terrible disaster of Adowa, where an Italian army was annihilated by the Abyssinians, ruined his government, and he never resumed office. An attack upon him for alleged misuse of public money failed; he resigned his seat for Palermo, but was re-elected by an immense majority. His eyesight, however, gave way, and he afterwards took little part in public affairs. He *d.* at Naples.

Crispin, Saint and Martyr, lived during the third century. He, with his brother Crispianus, is said to have left Rome for Gaul and to have carried on the trade of a shoemaker while there, thus becoming the patron saint of shoemakers. In 287 the two brothers were put to death, and their martyrdom is commemorated on Oct. 25.

Crissa, or **Crisa**, a tn. of anct. Greece in Phocis, was situated S.W. of Delphi near Mount Parnassus, remains of its old walls still being in existence. Some people have identified it with Cirrha, but the general opinion is that Cirrha was the port, although the two were intimately connected in anct. history. Owing to large tolls having been levied on pilgrims visiting the oracle, war was declared on these towns by the Amphictyons near the beginning of the sixth century B.C., with the result that the place was taken.

Cristofori, Bartolommeo (1655-1731), *b.* at Padua. He was a maker of harpsichords, and after carrying on his business in Padua for some time, was eventually asked by Ferdinand of Medicis to go to Florence, where he remained until his death. He was also the first one to employ 'hammers' in the mechanism of the piano.

Critchett, Richard Claude ('R. C. Carton') (1856-1928), Eng. actor and playwright; son of Geo. Critchett, F.R.C.S. Was on stage in Bristol and London; collaborated with Cecil Raleigh. His separately-written plays include: *Liberty Hall*; *The Home Secretary*; *A White Elephant*; *The Tree of Knowledge*; *Lord and Lady Algy*; *Lady Huntworth's Experiment*; *The Undercurrent*; *The Rich Mrs. Repton*; *Mr. Hopkinson* (in which Jas. Welch made a hit); *Public Opinion*; *Eccentric Lord Combermere*; *The Bear-Leaders*; *The Off-Chance*; *One Too Many*, 1922.

Criterion Theatre, London, was opened in 1874, and was originally joined to Messrs. Spiers & Pond's Hotel, being built underground. In 1875 Wyndham obtained a share in the management of the theatre. In

1884 the theatre was reopened, entirely under the management of Wyndham, after having been reconstructed, *Brighton* and *The Candidate* both proving successes. In 1886 Wyndham appeared with Miss Mary Moore in *David Garrick*, which was one of his greatest successes. After this old plays were revived, among them *Wild Oats*, *The School for Scandal*, *She Stoops to Conquer*, and *London Assurance*. In 1893 *The Bauble Shop* was produced, and this was followed by *The Case of Rebellious Susan* (1894), and in 1897 two plays by Henry Arthur Jones were produced, *The Physician* and *The Liars*, the latter having been revived.

Critias, a pupil of Socrates, but was not a follower of his good doctrines, at any rate after he had passed from the sphere of Socrates' personal influence. In Athens he led the oligarchical party, and in 404 B.C. he was the chief one of the body known as the Thirty Tyrants, practising in that capacity many excesses and cruelties. In the same year 404 B.C., he fell in the battle of Munychia, fighting against Thrasybulus. He was also a writer of poetry, and is said to have written a work on politics.

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and New Testaments practised this art in some degree. The early Fathers may thus be termed textual critics, to a certain extent. In the last century, however, such great strides have been made in this subject, that the term is generally reserved to the work of this period. The autographs of the Scriptures are no longer extant, and in the various copies which remain there are many differences of text. These differences have arisen in various ways, some from the errors of copyists, which can never be avoided, some from the interpolation of glosses into the text. It is the work of the lower critic to collate all the texts at his disposal, and all parallel documents which may throw light on the subject. From these he attempts to find out the original autograph readings. The field for N.T. criticism is rendered larger by the fact that a greater number of MSS. of this part of the Bible have come down to us. The most useful text of the N.T. is Westcott and Hort's *New Testament in the Original Greek*, published by Macmillan, 1881. (2) Higher criticism, on the other hand, deals not with the text but with the interpretation of the sacred writings, though it must obviously make use of the results of textual criticism in order properly to perform this function. The higher critic must discuss the books of the Bible literally, historically, and theologically. A work of primary importance is the dating of the various writings, and the settlement of their authorship. This criticism was first applied to the O.T. by Jean Astruc, a Fr. physician, whose work, entitled *Conjectures sur les mémoires originaux dont il paroît que Moïse s'est servi pour composer le livre de la Genèse*, was published in 1753 with some doubt by the devout Catholic, lest it should become an instrument in the hands of the free-thinkers. In this work he points out the distinction between the two parts of the book of Genesis, and his position has been supported and extended by modern critics. The next important name in O.T. criticism is that of Eichhorn, who applied Astruc's system of examination to the rest of the Pentateuch. The introduction of these methods of historical study into the realms of sacred thought was viewed with horror by the ultra-orthodox, and vigorous attempts were made to stop it. The changes of attitude to the Jewish writings which the new criticism necessitated, at first caused alarm, but many of its conclusions are now generally accepted. The Mosaic authorship of the Pentateuch, for instance, is abandoned, and 'Isaiah' is believed to be the work of two or more inde-

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in 1894 he was again premier, and an anarchist attempt on his life told greatly in his favour; but in 1895 the terrible disaster of Adowa, where an Italian army was annihilated by the Abyssinians, ruined his government, and he never resumed office. An attack upon him for alleged misuse of public money failed; he resigned his seat for Palermo, but was re-elected by an immense majority. His eyesight, however, gave way, and he afterwards took little part in public affairs. He d. at Naples.

Crispin, Saint and Martyr, lived during the third century. He, with his brother Crispianus, is said to have left Rome for Gaul and to have carried on the trade of a shoemaker while there, thus becoming the patron saint of shoemakers. In 287 the two brothers were put to death, and their martyrdom is commemorated on Oct. 25.

Crissa, or Crisa, a tn. of anct. Greece in Phocis, was situated S.W. of Delphi near Mount Parnassus, remains of its old walls still being in existence. Some people have identified it with Cirrha, but the general opinion is that Cirrha was the port, although the two were intimately connected in anct. history. Owing to large tolls having been levied on pilgrims visiting the oracle, war was declared on these towns by the Amphictyons near the beginning of the sixth century B.C., with the result that the place was taken.

Cristofori, Bartolommeo (1655-1731), b. at Padua. He was a maker of harpsichords, and after carrying on his business in Padua for some time, was eventually asked by Ferdinand of Medici to go to Florence, where he remained until his death. He was also the first one to employ 'hammers' in the mechanism of the piano.

Critchett, Richard Claude ('R. C. Carton') (1856-1928), Eng. actor and playwright; son of Geo. Critchett, F.R.C.S. Was on stage in Bristol and London; collaborated with Cecil Raleigh. His separately-written plays include: *Liberty Hall*; *The Home Secretary*; *A White Elephant*; *The Tree of Knowledge*; *Lord and Lady Algy*; *Lady Huntworth's Experiment*; *The Undercurrent*; *The Rich Mrs. Repton*; *Mr. Hopkinson* (in which Jas. Welch made a hit); *Public Opinion*; *Eccentric Lord Combermere*; *The Bear-Leaders*; *The Off-Chance*; *One Too Many*, 1922.

Criterion Theatre, London, was opened in 1874, and was originally joined to Messrs. Spiers & Pond's Hotel, being built underground. In 1875 Wyndham obtained a share in the management of the theatre. In

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study and interpretation of literary art, and itself forms a branch of literature. Matthew Arnold spoke of it in its widest significance as 'a disinterested endeavour to learn and propagate the best that is known and thought in the world.' In a more limited sense, it is the unprejudiced analysis of the merits and defects of some particular literary work, or the attempt to estimate the relative position of an individual writer in literature. L. C. may be considered from two sides—for its theory and for its practice. The theory of it falls within the study of æstheticism, that is, it comprises the study of the nature of beauty, and of the nature and function of art. The critic, in examining the great underlying principles of art, not infrequently tends to confuse æsthetic with ethical considerations. As these principles are interpreted differently in different times, so we obtain changes in taste. Thus, the theory of L. C. may be said to be the philosophy of taste, while the practice of it is the history of taste. Matthew Arnold asserted that it was impossible to criticise without recreating. An artist attempts to give his conception of the ideal truth which nature erroneously expresses. He does not merely imitate what he sees or transcribe what he hears, but he chooses those things which fit in with his general conception of truth. While the artist selects, arranges, and creates, it is the function of the critic to explain the principle of selection, and, by his interpretation, to recreate for his age the great creative works of all time. From its very nature criticism must be of late birth in the literary history of a nation. Accordingly, it was not till the end of the great period of Gk. art that there arose a great critic. Previous to Aristotle, Plato had discussed, in the second book of his *Republic*, the nature of the distinction between lyric, epic, and dramatic poetry; he, and also Isocrates, had examined and discussed the rules of rhetoric; and Aristophanes had delivered a pungent criticism of the plays of Euripides in the *Frogs*. But Aristotle is generally recognised to be the founder of L. C. Every true critic must turn to the *Poetics* for the fundamental principles of his art, though, of course, many of Aristotle's words, with the development of literature, cannot be accepted or must receive a modern interpretation. For his experience was limited in that he knew no literature save that of his own country. Aristotle, however, examined the literature to hand with wonderful perspicacity. He discusses general theories, deduced chiefly from

Gk. drama, and also deals with certain technical matters, such as the uses of various metrical forms as a medium for poetic thought. After Aristotle, the next critics of any note are those who belonged to the Neoplatonic school of thought, whose chief work was to analyse the nature of beauty. Among them must be reckoned Proclus, Crates, Aristarchus Zenodotus, and Plotinus (translated into Latin, 1492). Rom. literature did not produce many great critics apart from Cicero and Horace. The former was chiefly interested in the rules of rhetoric. The canons of poetic art, set forth by Horace in some of his Epistles and Satires, as well as in his *Ars Poetica*, had a great influence on the 'correct' school of the eighteenth century. In these works he discourages any departure from the rules laid down by the Gks., but gives no very illuminating or independent criticism of art. Other Rom. critics that may be briefly noticed here are Servius Maurus Honoratus, who wrote an elaborate commentary on Virgil; and his contemporary, Macrobius (about A.D. 400), who wrote a dissertation in seven books, entitled *Saturnalia Convivia*, on criticism, history, and mythology. A late Gk. writer, whose works must be mentioned on account of its far-reaching influence, is Cassius Longinus. In *Περὶ ὑψους, On the Sublime* (written about A.D. 260; printed 1554), Longinus lays great stress on a hitherto not much discussed aspect of beauty, namely, the harmony of words and the dignity of style. Until the work of Dante and Boccaccio was published in Italy, there was no critical work produced in the 'Dark Ages' apart from one or two rhythmical treatises, such as the *Ars rhythmica* of John of Garlandia. At the revival of learning there was a large output of humanist criticism, the chief works of this kind, produced in Italy, being Vida's *Poetics*, 1527; Scaliger's *Poetics*, 1561; Castelvetro's *Poetica*, 1570; Patrizzi's *Poetica*, 1586; and Tasso's *Discorsi*, 1587. It was about this time that critical literature began to be written in England. It is true that Chaucer's had paid homage to his masters, Dante, Petrarch, and Boccaccio, and, in his reference to the 'false gallop' of chivalrous verse, as well as in his delightful rhyme of *Sir Thopaz*, had shown clearly what he thought of the romantic ballad, but it is not till the age of Elizabeth that criticism was consciously written as such. Elizabethan criticism did not attempt to analyse or interpret the works of individual writers, but dealt with the remoter subjects of classification of

writers or their works according to the literary form employed, and with technical considerations of metres. From 1575 till the beginning of the seventeenth century a literary controversy raged round the question of observing quantitative rules in writing Eng. verse. The chief advocates of the classical metres were Gascoigne, in *Certain Notes of Instructions concerning the Making of Verse or Rime in English*, 1575; Webbe in a *Discourse of English Poetrie*, 1586; and Harvey in his letters to Spenser and others. Sir Philip Sidney introduced some halting hexameters into his *Arcadia*, Spenser experimented in iambics, and Webbe turned Spenser's *Ye Dainty Nymphs* into grotesque sapphics. Puttenham, in his *Arte of English Poesie*, 1589, was more cautious and discriminating in writing about the vogue for quantitative metres, and showed great literary acumen in his remarks about Chaucer, and in marking the position of Surrey and Wyatt, the 'courtly makers.' The poets, Sidney and Spenser, soon were taught by their musical ear the absurdity of adopting laws of classical prosody when dealing with a language suited, not to quantitative, but to accentual metre. In 1602, however, Campion renewed the controversy in his *Observations in the Arte of English Poesie*, arguing that quantity or length of time is by no means immaterial in the writing of harmonious verse, but choosing for his examples certain metres in which the quantitative and accentual systems coincide. His inconsistency was attacked by Daniel in a *Defence of Rhyme*, 1603. Another literary controversy in which the Elizabethans were engaged was the far more important question of the function and legitimacy of art. In 1579 Stephen Gosson made a violent onslaught on the stage in his *School of Abuse*. He was answered by Thomas Lodge in a *Defence of Poetry, Music, and Stage Plays* (1580), and in turn answered back in *Plays Confuted in Five Actions* (1581). About this time Sidney wrote his famous defence of imaginative art, *An Apologie for Poetrie* (published 1595). Aristotle had written: 'Poetry is more philosophical and more studiously serious than history,' but, on the other hand, Plato had banished the poets from his *Republic*, because they were untruthful, and because their poetry was emotionally enervating. Sidney felt that art must vindicate itself as ethically potent, and therefore, in his *Apologie*, unlike Gosson and Lodge, he does not descend to any scurrilous abuse of his contemporaries, but discloses his large and noble conception of what poetry

should be. 'From the Elizabethans to Milton, from Milton to Johnson, Eng. criticism was dominated by constant reference to classical models.' But it was the richness and freedom of the ancts. that had chiefly appealed to men like Marlowe and Spenser, and many, 'striving after knowledge infinite,' had allowed their imagination to run riot. The reaction against the uncurbed freedom of the Elizabethan writers began with Ben Jonson, who urged the necessity of restraint and discipline in art, and insisted that the learned do use an 'election and a mean.' His criticisms may be found in the introduction to his plays, and in *Timber, or Discoveries upon Men*, etc. In his *Conversations* with Drummond of Hawthornden he made some very acrid comments on his contemporaries, but he was capable of the most generous praise, as in his *Ode to Shakespeare*. The new school, of which Dryden was the head, accepted certain laws or principles of art, formulated by Aristotle, Horace, or such Fr. critics as Corneille and Boileau, and closely adhered to them on the assumption that they were fixed and invariable. They found fault with the Elizabethans for their lawlessness, and only admired 'correctness,' proportion, and harmony. The members of the new school possessed, however, many of the qualities which make up a good critic. The Elizabethans were, in general, so busy creating that they did not stop to analyse their own words or the words of their fellows. Their imagination was teeming with ideas. It was essentially a creative age. The writers of the so-called classical school lacked inspiration, but possessed keen, alert minds, an observant eye, and a judicious spirit. Their weakness as critics lay in their desire to standardise literature, to classify everything according to rule. Dryden was called by Dr. Johnson the 'father of Eng. criticism.' He was certainly the greatest critic of his age; it is a matter of opinion whether he has ever been surpassed in that particular sphere. Dryden inaugurated two new methods of L. C., the comparative and the historic. The Elizabethans in a haphazard way employed the comparative method. That is to say, they were fond of classifying authors according to the form or subject-matter of their works. Meres prefixes to his *Palladis Tamia, or Wit's Treasury*, 1598, an essay in which he compares Eng. with classic and Italian authors. But an author who brings Homer into line with William Warner cannot be said to have grasped the true meaning of comparative method.

Dryden did not indulge in the profitless occupation of comparing the degrees of merit in different authors, but compared the qualities of different works, by means of comparison and contrast showing up what was good and bad in each. Daniel, in *A Defence of Rhyme*, 1603, had employed the historic method by tracing the revival of learning back to Petrarch, and by defending rhyme on the ground of its popularity with many ant. and modern races, but, unlike Dryden's, his work is disconnected and inaccurate. Moreover, Dryden's whole method of criticising is entirely different from that of any previous critic. He does not dogmatise, but in an incomparably easy and pleasant manner takes the reader into his confidences, discourses with him, and finally persuades him into his own way of thinking. The finest of Dryden's critical writings is the *Essay of Dramatic Poesy*, 1667. His other essays are prefixed to his *Annus Mirabilis*, 1667; to his *Fables, Ancient and Modern*, 1700; and to his various plays. In the *Essay* Dryden compares the relative merits of classical, Fr., and Eng. drama, and discusses how far the dramatist should restrict himself by adhering to such conventional rules as those of the Unities. A part of the *Essay* is taken up in replying to his brother-in-law, Sir Robert Howard, with regard to the use of the heroic couplet in tragedy. Dryden argued that art defeats its purpose by too much realism, and that, therefore, drama should be 'heightened with all the arts and ornaments of poetry,' and that the heroic couplet serves to 'move that admiration which is the delight of serious plays.' In 1675, however, Dryden confessed that he was 'weary of his long-loved mistress Rhyme.' In the *Annus Mirabilis* he also discusses metrical questions. There he argues that the quatrain, as formerly used by Davies and Davenant, is the most fitting measure for heroic poems. But he later abandoned that metre in favour of Waller's reformed couplet. Perhaps what most interests the modern reader in Dryden's essays is his criticism of his predecessors. Though lacking in supreme artistic sensibilities, he possessed a catholic taste and fine literary discrimination. He was quick in picking out the salient features of the men under discussion, and couched his criticisms in a vigorous and incisive form. In his enthusiastic but discriminating eulogy of Shakespeare, Dryden conciliated a prejudiced audience, and established the position of that poet for all time. Moreover, he started a fashion. The editing and annotating

of Shakespeare form an important part of the work of the eighteenth century. Nicholas Rowe (1673-1718) was one of the earliest of these editors. His edition appeared in eight volumes (1709-14). Pope's *Shakespeare* was published in six volumes in 1725. In the following year Lewis Theobald (1688-1744), 'the Porson of Shakespearean criticism,' published *Shakespeare Restored*, which was followed in 1727 by *Proposals for Publishing Emendations and Remarks on Shakespeare*, and in 1733 by a seven-volume edition of the dramatist. Dr. Johnson's edition, which included the labours of former critics, was completed in 1765. In the latter half of the century appeared the work of three painstaking and scholarly editors, Capell (10 vols.), 1768; Steevens (10 vols., in revision of Johnson), 1773; Malone (10 vols.), 1790. In 1821 appeared the famous edition, commonly called *Boswell's Malone*, in which Reed and James Boswell collaborated. Throughout the eighteenth century, L. C., undoubtedly through the example set by Dryden, was very much occupied with the work of individual writers. Milton continued to hold the high throne on which Dryden had set him. Addison (1672-1719) wrote eighteen papers on the great poems of Milton, passing by, according to the taste of his times, the *Juvenilia* as almost beneath criticism. Dr. Johnson's famous *Lives of the Poets* were published in 1778-81. Johnson, like his contemporaries, had great regard for what the *Rambler* called 'the indispensable laws of Aristotelian criticism.' He had few, if any, artistic sensibilities, and had no great love of what is purely imaginative beauty. He was, too, hampered as a critic by his strong literary and personal prejudices, and by his tendency towards didactic moralising. Nevertheless, apart from certain blunders which are quite obvious to modern readers, because they have been pointed at so frequently, his judgments are sound and discriminating, and his work is full of wise reflections on life. The appearance and subsequent development of the weekly magazine or review gave rise to a new kind of L. C.: the short critical essay. The great prose writers of this period—Addison, Steel, Swift, Johnson, Goldsmith, and the rest—all contributed to the papers of the day, the chief of which were *The Tatler*, 1709-11; *The Spectator*, 1711-12; *The Bee*; *The Public Ledger*; *The Rambler*, 1750-52; *The Idler*, 1758-60; *The Monthly Review*, etc. In Addison's essays on *Wit and Humour* we may find the first tentative writer

on æsthetics, on the philosophy and science of art. Pope's *Treatise on the Bathos* was published in 1727, Mark Akenside's *Pleasures of the Imagination* in 1744, its final form appearing in 1772; Edmund Burke's *Philosophical Inquiry into the Origin of our Ideas on the Sublime and Beautiful* in 1756, and from 1769 to 1791 Sir Joshua Reynolds (1723-92) delivered his famous 'Discourses on Art' at the Academy. The change in L. C. at the dawn of the nineteenth century preceded a change in literary taste. The transition from the old order to the new was gradual, and signs of revolt from the rules and methods of the Augustans are apparent in the work of such poets as Goldsmith, Gray, Collins, Crabbe, and Cowper. The Romantic movement was marked by 'naturalism,' or a breaking away from the sophistication of society with a consequent 'return to nature,' and by 'mediævalism,' or 'Gothicism,' stimulated by what Gray called 'the rude, the savage, the tremendous.' Both aspects of the new school of literary art are present in the *Lyrical Ballads*, published in 1798. The preface of the 1800 edition contained Wordsworth's justification of his poetic diction. Dryden had argued that, as poetry is an idealised representation of life, the language of poetry must be removed from the language of real life. His theory was developed and enlarged until it 'dominated the criticism and perverted the art of the eighteenth century,' until the recognised distinction between prose and poetry was one of outward form only. Wordsworth asounded his contemporaries by asserting that 'there neither is nor can be any essential difference between the language of prose and verse.' Not only did Wordsworth release poetry from the trammels of artificial diction, but he widened men's conception of it by showing that art is the supreme achievement of human consciousness. The change in taste from the rational to the mystic coincided with a change in idea of the function of L. C. The criticism of absolute standards gave place to that of imaginative appreciation. Coleridge, in his course of lectures on the Eng. poets (1808 and 1811-12), and in his *Biographia Literaria*, 1817, regards the function of criticism to be reverent interpretation. In this respect he himself revolutionised Shakespearian criticism in England, and established the position of Wordsworth as a poet. Coleridge was much influenced by his studies of the Ger. classics. The criticism of the Romantics had a new aim with higher principles. By their study of the literature and history of

ant. and modern nations, their field of comparison was enlarged, and they obtained a wider tolerance. L. C. meant to the new school a criticism of life, whose function it is to throw light on 'the dark places of human thought and history, upon the growth and subtle transformation of spiritual belief.' Carlyle spoke of 'the poetry of criticism; for it is in some sort also a creative art; aiming, at least, to reproduce under a different shape the existing product of the poet; painting to the intellect what already lay painted to the heart and the imagination.' It is impossible in the limited space at our disposal to dwell in any detail on the characteristics of individual writers. The chief critics, not already mentioned, of the early part of the nineteenth century, and their more important work may be briefly noted: Lamb, *Specimens of English Dramatic Poets*, 1808; 'Essays of Elia' in the *London Magazine*, 1820; *Last Essays*, 1833. Peacock, *Four Ages of Poetry*, which provoked Shelley's *Defence of Poetry*, 1820. De Quincey, *Confessions of an English Opium Eater*, 1821; *German Prose Classics*, 1826-27; Hazlitt, *Characters of Shakespear's Plays*, 1817; *Lectures on the English Poets*, 1818; *Lectures on the English Comic Writers*, 1819; *Lectures on the Dramatic Literature of the Reign of Elizabeth*, 1821; *The Spirit of the Age*, 1825; Landor, *Imaginary Conversations*, 1824-28 and 1829; Macaulay, 'Essays' in the *Edinburgh Review*, 1825; Leigh Hunt, *Lord Byron and some of his Contemporaries*, 1828; and Carlyle, 'Essays' in the *Edinburgh Review* and other magazines, 1827-33. From the above list the general features of the work may be observed. All the early nineteenth century critics were interested in the function of poetry in the nature of poetic imagination, and in the relation between art and science. For many years a controversy continued to rage round Wordsworth, and it was not till the closing years of his life that his position as a poet was publicly recognised. His poetry and the nature of his spiritual insight were continually discussed by his younger contemporaries. The work of these writers is also distinguished by its revaluation and enthusiastic admiration for seventeenth century Eng. writers, and, to a certain extent, by its interest in European literature. The magazines and reviews established at the beginning of the nineteenth century are of great importance in the history of Eng. criticism. The chief of these influential organs were *The Edinburgh Review*, 1802; *The Quarterly Review*, 1800; *The*

Blackwood Magazine, 1816; and *The London Magazine*, 1817. In them we find for the first time literary criticism affected by the political bias of the writer. The *Edinburgh* was Whig, and the *Quarterly* equally hot Tory in tone. Jeffrey, the editor of the former, and Gifford, of the latter review, represented the old-fashioned school of thought. Each was equally virulent in their attacks on the new writers. To Jeffrey, Carlyle traced the beginning of 'the rash, reckless style of criticising everything,' and on this matter Byron wrote, with justification: 'You know the system of the Edinburgh gentlemen is universal attack. They praise none; and neither the public nor the author expects praise from them. To them must be traced the vulgar misconception that the word "criticism" implies unfavourable censure and cavilling.' The reviewer of the *Excursion* began thus: 'This will never do; the case of Mr. Wordsworth is now manifestly hopeless.' This sort of attack made popular in some quarters a careless and cruel kind of reviewing, which caused Disraeli to say with more bitterness than truth: 'The critics are the men who have failed in literature and art.' By 1820, however, the recognition of the genius of the Romantic writers became more general. Some of the reviews made their *amende honorable*; for example, the *Edinburgh*, which had received sound castigation from Byron for its attack on *Hours of Idleness*, was among the most ardent admirers of *The Corsair*, and the *Bride of Abydos*. The more important reviews became the potent auxiliary of the literary man, who, as in the case of Macaulay, De Quincey, Carlyle, etc., by their contributions widely increased their influence. Modern reviewing is for the most part ephemeral. But every literary review that is tolerant of and amenable to new impressions is of importance to L. C. in the formation of general taste and interest in literature. The outstanding figures of late nineteenth century L. C. have been Matthew Arnold, Ruskin, and Pater. Arnold's works of criticism include *Essays in Criticism*, 1865 and 1888; *On the Study of Celtic Literature*, 1867; *Literature and Dogma*, 1873; and *Mixed Essays*, 1879. Many of his literary judgments were contributed from time to time to magazines and reviews, thus reaching a wide public, and others were pronounced in the form of prefaces to selections from Eng. poets. His criticisms were very much influenced by study of the classics, and he strongly opposed the 'Philistine' tendencies of thought in England. Some of his criticisms

appear arbitrary and fantastic, but in general they are sound and of great value. They are distinguished by his belief that true art should deal with the serious issues of life, and by his love of the 'grand manner' of ancient, classical writers. In *Literature and Dogma* he applied literary treatment to theology. To him literature and philosophy were very closely blended. The philosophic criticism of the second decade of the twentieth century derives from Arnold, but was separated from him in point of time by the impressionist criticism of Swinburne, Pater and Symonds, followed by the scholarly criticism of Gosse, Saintsbury, Walter Raleigh, Sir Arthur Quiller-Couch and Israel Gollancz. From these derives a careful literary research, pursued diligently in England and America. Post-war L. C. tends to found its values upon a view of life, either humanist—i.e. the romantic humanism of J. Middleton Murry in England or the classicist humanism of Irving Babbitt in America—or anti-humanist in so far as it derives from the philosophy of T. E. Hume, whose *Speculations* were published posthumously in 1924. The most distinguished exponents of classicist criticism are T. S. Eliot and D. Wyndham Lewis. L. C. of the analytical kind has been done by Graves and Riding in *Survey of Modernist Poetry*. One of the most important developments of L. C. is in the psychological interpretation of critical values by I. A. Richards, *Principles of Literary Criticism*, 1925, and *Practical Criticism*, 1930.

Consult S. H. Butcher, *Aristotle's Theory of Poetry and Fine Arts*, 1902; W. Rhys Roberts *Longinus*, 1899; A. E. Egger, *Essai sur l'Histoire de la Critique chez les Grecs*, 1849; Springarn, *History of Literary Criticism in the Renaissance*, 5th Ed., 1925; Gayley and Scott, *Introduction to the Methods and Materials of Literary Criticism*, 1899; B. Bosanquet, *A History of Esthetics*, 1891; W. J. Courthope, *Liberty and Authority in Matters of Taste*, 1896; Worsfold's *Judgment in Literature*, 1930; C. E. Vaughan, *Literary Criticism* (new edition), 1906; Saintsbury, *History of Criticism* (3 vols.), 1902-4. For collections of critical essays, see Gregory Smith's *Elizabethan Critical Essays*, 1897; J. H. Haslewood's *Ancient Critical Essays upon English Poets and Poesy*, 1811-15; C. W. Moulton's *Library of Literary Criticism*, 1901-5; Sir Gilbert Murray, *The Classical Tradition in Poetry*, 1927.

Critolaus, a Gk. philosopher, b. at Phaselis in Lycia. He became the chief of the Peripatetic school after

Ariston of Ceos, whose pupil he had been. He was chosen to accompany Carneades and Diogenes to Rome. The mission was successful, and the 500 talents which the Athenians had asked back from the Romans were sent by means of these ambassadors.

Crittenden, John Jordan (1787-1863), one of the most famous and influential men that his state ever produced, was b. in Versailles, Kentucky, U.S.A., Sept. 10, 1787. He graduated from William and Mary College, and began the practice of law in his native state. He entered politics at the age of 24 and from that time on his fellow citizens seemed to delight to honour him with almost any office to which he aspired. From 1811 to 1817 he was a member of the State House of Representatives, being Speaker 1815-6. From 1817 to 1819 he was United States Senator. In 1825 he was once more elected to the State House of Representatives. He served again from 1829 to 1832, being Speaker 1829-32. 1827-29 he was United States District Attorney, from which office he was removed by the President as a result of political differences. He left his party and, as a Whig, was sent to the United States Senate from 1835 to 1841, at which time he resigned to become Attorney-General in the cabinet of President W. H. Harrison. He was again sent to the U.S. Senate from 1842 to 1848. From 1848 to 1850 he served as Governor of his state. In 1850 he served in the cabinet of President Fillmore as Attorney-General. Once more, from 1855 to 1861, he served in the U.S. Senate. The question of slavery in the newly-opened territories and new states was then to the fore. The shadows of the coming Civil War were falling on the nation. Crittenden was an ardent champion of the union and so advocated all compromise measures which would avoid rebellion. When the war did break out he was one of the most potent influences in keeping Kentucky from seceding from the union. In 1861 he was elected to the National House of Representatives, where he stoutly upheld the government in its war-making policies, but bitterly opposed dividing Virginia into two states and also opposed enrollment of negro slaves as soldiers. He d. at Frankfort, Ky., July 26, 1863. In the Civil War days Kentucky occupied the most tragic position of any state in the U.S.A. The northern states were overwhelmingly for the Union. The southern states were likewise so for the Confederacy. Kentucky was almost equally divided

in sentiment. The question split families, father against son and brother against brother. This was tragically exemplified in Crittenden's own case. One son, George B. Crittenden, b. 1812, d. 1880, who had served with gallantry in the American army during the war with Mexico, differed from his unionist father, entered the Confederate army and served as a Major-General. The other son, Thomas L. Crittenden, b. 1815, d. 1893, also served with gallantry in the Mexican war. Like his father, he was a unionist and served as a Major-General in the Union army.

Crivelli, Carlo, a painter of Venice who lived in the fifteenth century, and seems to have been the pupil of Antonio Murano. The chief among his works are: 'Madonna and Child Enthroned,' 'Madonna in Ecstasy,' 'Saints Catherine and Mary Magdalene,' 'The Twelve Apostles,' 'Coronation of the Virgin,' 'The Annunciation.'

Croaghpatrick, a mountain of Ireland in the co. of Mayo, situated on the S. shore of Clew Bay and to the S.W. of Westport. It is about 2500 ft. high.

Croatia-Slavonia, formerly a crown-land within the Austro-Hungarian Empire, now a province of Yugoslavia, the Kingdom of the Serbs, Croats and Slovenes. Croatia, the larger portion of C.-S., lies in the W., extending from the Adriatic to the R. Drave. The R. Danube also separates this province from Hungary, the R. Save from Bosnia on the S. Area is 16,920 sq. m. The surface is largely mountainous and hilly. There are wooded offshoots of the Julian and Styrian Alps (2000-4000 ft.). The S. of Croatia includes part of the cretaceous Alpine highlands, known as the Karst district, with deep-cut valleys and subterranean water-courses. There are also the Zagrab highlands, the Great and Little Kapella, and the Velebit Planina (about 5700 ft.). There are also alluvial and diluvial plains, fertile valleys, and many forests in the hills of oak, beech, elm, and pine. The lower parts of Slavonia are unhealthy, through marshes and swamps, while Croatia's coast-land is exposed to the Adriatic currents and the ravages of the Bora, which sweeps down like a hurricane from the Karst. Otherwise the climate is moderate, and the land generally fertile. Crops of wheat, pulse, maize, flax, hemp, potatoes, and tobacco thrive. Much fruit is grown in the S.—apples, nuts, grapes, etc. The plum-brandy, 'Slivowitz,' is famous, and some wines are produced. Beautiful cotton and silk fabrics are manufactured, and

there are silk, glass, and sugar mills. Among the exports are grain, fruit, timber, and flour. Horses, sheep, swine, and other live-stock are reared. The chief minerals are coal and lignite (Ivanščica, Bilo, Požoga, Vrdnik Mts.), iron ore, zinc, lead, and copper, but they are not very important. The people are largely engaged in agriculture. The inhabitants are mainly Croats or Serbs (89 per cent.), about 5 per cent. are Gers., and there are also a few Hungarians, Magyars, and Jews. Nearly three-quarters of the population are Rom. Catholics, the rest are mostly members of the Gk. Orthodox Church. The 'zadrugas,' or family communities, are a characteristic feature of their social life. These consist of ten to twenty persons, under the rule of a 'domaćin' or 'gospodar.' Manufactures and education are improving, but still some 44 per cent. of the population are illiterate. The capital, Zágřáb, has a university. Other large tns. are Varazd, Karlovac Goruji, Eszék, Brod, Mitrovica, and Zimony. The port of Fiume (Rieka), originally in C.-S., was given an independent existence under the Treaty of Rapallo concluded with Italy in 1920. Eventually (1924) the port was partitioned, Fiume itself being allotted to Italy and Port Baross and the Delta to Yugo-Slavia. Other important trading ports in C.-S. are Zeug and Porto Ré. For administrative purposes Yugo-Slavia by the terms of the 1921 Constitution was divided into 'oblasti' or prefectures. There were four 'oblasti' in C.-S., each sending deputies to the National Assembly in proportion to the pop., one deputy to every 40,000 inhabitants. With the abolition of the Constitution the former provs. of Yugo-Slavia together with the names, Croatia, Slavonia, etc. were also abolished, and the country was divided into nine *banats*, each under a *ban* or governor nominated by the king. The *banats* were named after the rivers (e.g. Sava, capital Zágřáb), but the boundaries of what was formerly C.-S. have not been very much altered. The National Assembly was replaced by a Supreme Legislative Council, consisting of 11 Serbs, 4 Croats and 2 Slovenes. The total pop. of C.-S. (census 1921) is 2,739,593.

History.—The Croats (Chrobates and Chorwates) are Slavs, their language differing little from that of the Servians or Serbs. C.-S. was originally included in the Rom. province Pannonia. In the seventh century A.D. it was colonised by Croats from the Carpathians. In the ninth century they adopted Latin Christianity.

About 900, a kingdom, including Bosnia and Dalmatia, was established, and proclaimed independent of the Byzantine emperors. For nearly two centuries this kingdom lasted. From the close of the eleventh century down to the middle of the fifteenth its history was closely linked with that of Hungary. From then till the end of the seventeenth century it was under Turkish occupation. From 1777–1868 there were constant separations from Hungary, notably under the famous *ban*, Jellachich, 1848. At the reorganisation of the Austria-Hungary monarchy (1867–68) a compromise was agreed upon. In 1918, after the collapse of the Habsburg monarchy, C.-S. joined the newly-formed Kingdom of the Serbs, Croats and Slovenes. Politically C.-S. became the stronghold of the National Agrarian Party, and under their leader, Stefan Raditch, the Croats opposed the centralist Gov. This opposition came to a head in 1928 when attempts were made to make C.-S. autonomous. Raditch was assassinated by a member of the Serbian Radical Party, and soon after (Jan. 6, 1929) Alexander (q.v.), King of Yugo-Slavia, abolished the National Assembly and united the country under a royal dictatorship. The Croat Peasant Party ceased to exist. See Krauss, *Die vereinigten Königreiche Kroatien und Slavonien*, 1889; Csaplovicz, *Slavonien und Kroatien*, 1819; De Worms, *The Austro-Hungarian Empire*, 1877; H. Baerlein, *The Birth of Yugoslavia*, 1922; Glaise-Horstenau, *Collapse of Austria-Hungary* (Eng. trans.) (Dent), 1930.

Croce, Benedetto, Italian philosopher and critic, b. 1866, at Pescasseroli, Aquila. Began educ. at Catholic boarding-school in Naples. In 1883, by the earthquake of Casamicciola in the is. of Ischia, C. lost his parents and only sister, and was buried for hours under ruins and severely injured. Afterwards he lived at Rome with his uncle Silvio Spaventa, a Conservative leader. Returning to Naples in 1886, he became known as a local antiquarian. His philosophical disquisitions arose out of his historical studies, and began in 1893. He also devoted attention to the economic doctrines of Marx. In 1902 commenced publication of his works on the Philosophy of the Spirit (*Filosofia dello Spirito*)—derived from Neapolitan thinkers: Giambattista Vico (c. 1688–1744), who held there was a 'common nature' in mankind, ruling men's actions despite individual aims; Bertrando Spaventa; and Francesco de Sanctis (1817–1883). The Absolute is found

to be a beginningless and endless Activity; Aristotelian concepts virtually disappear; intuition becomes all-important, because reality is exhausted by the four pure concepts—Beauty, Truth, Usefulness, and Goodness. Obviously, then, not only man, but every conscious being, is a creator. Matter is mere lumber, whose origin and laws (if it can be said to have any) are unimportant, and whose mechanism is a contemptible appearance—instead of being the terrible obstacle it has heretofore been to those concerned about the freedom of the will. The difficulty of inducing belief that man is a creator in the Biblical sense—‘let there be light,’ ‘let there be sea,’ ‘let there be fishes’—is overcome, by denying separate reality to light and sea and fishes. C. was made a senator in 1910, and minister of education from June 1920 till July 1922. His works are most voluminous. *Filosofia dello Spirito* consists of three parts: *Estetica*, 1902; *Logica*, 1909; *Etica*, 1909.

Crocidolite, a mineral occurring in fibrous or asbestos-like filaments, belonging to the amphibole group. Chemically, it is an iron sodium silicate. It varies in colour, sometimes being of a golden yellow, and at others of a dull red or blue-green tint. The ornamental stone has a beautiful silky lustre. When of a blue colour, it is called ‘hawk’s-eye,’ and when of rich golden-brown, ‘tiger-eye.’ C. occurs in seams, associated with iron ores in Griqualand W. and Cape Colony. It is also found in some other places, but only in small quantities.

Crocket, in architecture, an ornament placed on the inclined sides of pinnacles, capitals, pediments, canopies, gables, spires, etc., of various buildings of the Early Eng. period; usually in the form of a winding stem, with buds or curled leaves projecting here and there, ending in a finial; sometimes in the form of animals. Cs. continued from the twelfth century throughout Gothic architecture.

Crockett, David (1786–1836), one of the classical types of American woodsmen, hunters, pioneers and fighters, b. Green County, Tennessee, Aug. 17, 1786. Largely self-taught, he knew more about the forests than books and could vie with the Indians in knowing the ways of the wild creatures and how to trap them. In 1813 he served under General Andrew Jackson in the war with the Creek Indians. He entered politics and from 1821 to 1824 served in the state legislature. He served in the National House of Representatives from 1827 to 1831.

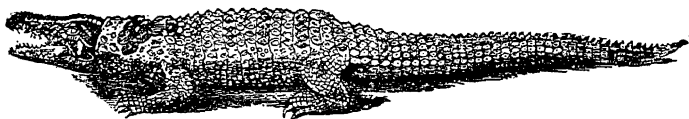
He lost his place in 1831, was re-elected in 1832 and again beaten in 1835 by the influence of Jackson, of whom he had been a sharp critic. He was a notable figure in Congress on account of his racy stories, smacking of the soil. After his last defeat for Congress, he moved into the then territory of Texas, was soon in the thick of the fighting with the Mexicans and lost his life as one of the defenders of the Alamo at San Antonio March 6, 1836. In the days before the Civil War ‘Davy’ Crockett was a hero to every American boy.

Crockett, Samuel Rutherford (1860–1914), a novelist, b. in Galloway, at Duchrae, where he was brought up on a farm. In 1886 joined the Free Church of Scotland, becoming a minister at Penicuik. He gave up the ministry, however, to pursue a literary career. His chief works are: *The Stickit Minister*, 1893; *The Lilac Sunbonnet*, 1894; *The Grey Man*, 1896; *Men of the Moss Hags*, 1895; *Sir Toady Lion*, 1897; *Maid Margaret of Galloway*, 1905; *The Loves of Miss Anne*, 1904; *Raidersland*, all about Grey Galloway, its *Stories, Traditions, Characters*; *The Seven Wise Men*, 1909; *The Smugglers*, 1911; *Sandy’s Love Affair*, 1913. He d. at Avignon.

Crocodilia (Gk. *κορδύλος*), an order of reptile characterised by a huge, lizard-like body, and recalling in many ways the giant Saurians with which the earth was peopled during a previous period of its existence. The whole of the existing members of the order are included in a single family, which may be subdivided into several generic groups; of these, the most specialised are the caimans and alligators (*q.v.*). Common peculiarities of the Crocodilidae are a long and powerful tail; a vertical longitudinal crest on the upper surface of the body, consisting of a series of horny lobes, double in the basal half of the tail and single beyond; and a protective armour, consisting of rows of quadrangular, horny shields of varying sizes, which overlap at the edges. The teeth, which are conical and may be of very large size, are confined to the margin of the jaws, where they are implanted in distinct sockets, and while in use are continually being replaced by fresh ones growing from beneath. A remarkable feature of the existing form of crocodile is the extremely backward position of the aperture of the internal nostrils, this being due to the development of special plates by the bones of the palate, which grow beneath the nasal passage so as to form a floor to it, and thus completely cut it off from the

cavity of the mouth. As the summit of the windpipe is continued upwards into this posterior aperture of the nostrils, crocodiles are able to breathe while their mouths are wide open and filled with water. The stomach is globular, with a pair of tendinous centres like those of birds; the digestion is so rapid and powerful that every bone of the creature's prey is dissolved whilst still in the wide and long gullet. As regards reproduction, crocodiles lay from twenty to sixty eggs, of the approximate size of those of a goose, and covered with a hard, white shell. These are deposited in some hollow in the sand of the bank, where, after being covered to a greater or less depth, they are left to hatch. Whether the parent always assists in the incubation is not certain. The true crocodiles comprise rather less than a dozen species, ranging over Africa, S. Asia, N. Australia, and tropical America.

Asia Minor to the R. Halys on the E. and the Taurus Mts. in the S. His enormous wealth was proverbial, and the phrase 'a perfect Croesus' still survives. For the legend of his interview with Solon, see Herodotus, i. 29. After the overthrow of the Median empire (549), the kings of Lydia and Babylonia leagued together against Cyrus of Persia. The Delphic oracle gave C. the ambiguous answer that if he marched against the Persians 'a great empire would be overthrown.' This proved to be his own. He was utterly defeated near Sardis and taken prisoner, 546. Accounts of his death vary greatly: Cyrus probably spared his life. The dedication in Gk. on fragmentary columns from the temple of Artemis (British Museum) are by C. See Bacchylides, iii. 23-62; Schubert, *De Cræso et Solone fabula*, 1868; Murray, *Journal of Hellenistic Studies*, x., 1889; Grote *History of Greece*, 1907.



CROCODILE

The Indian crocodile, known to natives as the mugger and erroneously to Anglo-Indians as the alligator, ranges over India, Ceylon, Burma, and the Malay Peninsula and Islands. It is a fresh-water variety, inhabiting only rivers, lakes, and marshes, and in its characteristics most nearly approaches the caiman and the alligator.

Crocus, the chief genus of the Iridaceæ, consists of many hardy species. They are to be found chiefly in the middle and S. parts of Europe and the only true British species is *C. nudiflorus*, which flowers in the autumn. *C. sativus* is the saffron C., a native of Asia Minor, cultivated in S. Europe; the dried stigmas yield saffron, formerly of repute as a perfume, and as a nervine, stomachic, and narcotic drug, now used chiefly as a colouring ingredient. The town of Saffron Walden has taken its name from its cultivation of the plant. *C. vernus* is the purple or white crocus of our gardens in spring; *C. biflorus*, the Scotch C., is a native of S. Italy.

Cræsus (c. 540 B.C.), the last King of Lydia, of the Mermnad dynasty, son of Alyattes. He conquered the Ionian, Æolian, and other neighbouring tribes, till his empire finally extended from the N. and W. coasts of

Croft or Crofts), William (1678-1727), an Eng. musical composer; organist of St. Anne's, Soho, 1700-02; of the Chapel Royal, 1707; of Westminster Abbey, 1708. His *Musica Sacra* (thirty anthems and a burial-service) appeared in 1724. St. Anne's and St. Matthew's psalm-tunes are also attributed to him, and a single chant in B. minor for the Anglican service. In early life he composed overtures and airs for various plays. See *Musical Times*, p. 577 (1900); Burney, *History of Music*, iii.

Crofter. A C. is defined by the Crofter's Holdings (Scotland) Act, 1886, to be any person who is tenant from year to year of a holding of arable or pasture land, who resides on his holding, and whose annual rent does not exceed £30. To constitute a C.'s holding, the holding must be in a crofting parish, i.e. one in which Cs. have for eighty years preceding the passing of the Act of 1886 had holdings of arable land, with a common right of pasturage. The etymology of C. is unknown, but the word *croft* (i.e. the agricultural holding itself) is derived from old Eng. *croft*, meaning an enclosed field. These holdings exist for the most part in the Highlands and islands of Scotland, and consist, or did consist, for the most part of extremely scanty

properties, the largest in Skye, for example, being but seven acres. The holding in common pasture involves the periodical conversion of the holdings into grassland. From the barrenness of the Highlands of Scotland, the condition of these joint tenants of divided farms was for long an unenviable one. Many of them, however, eked out a scanty livelihood by combining with their tillage, fishing, or some other vocation. Cs. for the most part seem always to have been good farmers, whence their few well-cultivated acres generally produced a better yield per acre than the land of the large farmer. The Act of 1886 and other amending Acts were passed as the result of much agitation to remedy the grievances of Cs., more especially in regard to security of tenure. For some time prior to the Act of 1886 there had been numerous evictions of the Cs. from their holdings, and the ensuing agitation, culminating in several royal commissions and many statutes, owed its strength to the belief held by the Cs. themselves that their tenancies were practically perpetual. Whether they were ever in law in a better position than an analogous class called *cottars*, who are simply squatters in dwelling-houses situate in a crofting parish, seems doubtful. But the Act of 1886 gives the C. a perpetual tenure, and the landlord cannot evict him unless his rent falls into arrear for one year; or he attempts to assign his tenancy; or becomes bankrupt, or is in default in other ways specified in the Act. The Crofters Commission, however, can remove a C. on such terms as to compensation as they think fit. The Commission consists of three members, one of whom must speak Gaelic. The commissioners have power to enlarge holdings, fix a fair rent, and settle the boundaries of Cs. holdings and grazings.

Crofts, Ernest (1847–1911), an Eng. artist, *b.* at Leeds and educated at Rugby School. He studied painting first in London under Alfred Clay and afterwards at Düsseldorf under Emil Hünten, a noted military artist. Among his pictures are: 'The Retreat,' 'On the Morning of the Battle of Waterloo,' 'Cromwell at Marston Moor,' 'Marlborough after the Battle of Ramillies,' 'At the Farm of Mont Saint Jean, Waterloo,' 'Charles I. on his way to the Scaffold,' 'Napoleon and the Old Guard at Waterloo.'

Croisic, or Le Croisic, a seaport in Loire-Inférieure, France. It is a watering-place and has fisheries; salt is produced here. Pop. 2370.

Croix, a tn. of France near to Roubaix in the dept. of Nord, with

chemical and textile industries. Pop. 19,280.

Croix, Ste., a Swiss vil., situated in the canton of Vaud, at an elevation of about 3600 ft. Its inhabitants are engaged in making watches and musical boxes. Pop. about 6000.

Croix de Guerre, a personal decoration for award to soldiers, sailors, or airmen of the Fr. and Belgian forces mentioned in despatches during the Great War. It was instituted in both countries in 1915. 'Mentions' were usually made for individual acts of gallantry, devotion to duty, or similar feats. The decoration is, of course, different in both countries.

Croker, John Wilson (1780–1857), politician and man of letters, was educated at Trinity College, Dublin, and went to the Irish Bar, where he rapidly made headway. In 1807 he was returned to Parliament as member for Downpatrick. Perceval in 1809 appointed him secretary to the Admiralty, in which position he did excellent work, in which indeed he was so interested that he declined higher office. He retired from the Admiralty in 1830. He was an admirable debater, and more than once overthrew Macaulay, once referring to a speech made by the historian as 'vague generalities handled with that brilliant imagination which tickles the ear and pleases the fancy without satisfying the reason.' There is no doubt that these discomfitures had much to do with Macaulay's unjust and envenomed review of his adversary's admirable edition of Boswell's *Johnson*; and C.'s essay on Macaulay's *History* is, by contrast, impartial and kindly. He wrote some valuable essays on the Fr. Revolution; edited the *Suffolk Papers*, the *Letters of Mary Lepel*; and collected material for an edition of Pope's works (subsequently used by Whitewell, Elwin, and Courthope). From his pen is said to have come the famous essay on Keats's *Endymion*. An autocratic person, he made many enemies, and was contemptuously and quite unfairly depicted as Rigby in *Coningsby*, and, with as little justification, as Wenham in *Vanity Fair*. Others of his chief works are: *Stories for Children from the History of England*, 1817; *Essays on the Early Period of the French Revolution*, 1857; and his edition of Boswell's *Life of Johnson*, 1831. See Louis J. Jennings, *Memoirs and Correspondence of the Right. Hon. John Wilson Croker*, 1884.

Croker, Richard (1841–1922), American political boss, *b.* Nov. 23, 1841, at Clonakilty, co. Cork, Ireland. His parents emigrated with him when he was two years old, and settled in New York, where he re-

ceived a common-school education. In 1868 he was elected Alderman. He afterwards filled various municipal offices, ending as City Chamberlain in 1890; meanwhile he had acquired great influence in Tammany Hall, and in that connection had fought Tweed in 1870. Soon after the death of Tweed's successor, John Kelly, in 1886, C. became Tammany Boss. After his resignation in 1902, he returned to Ireland. He trained horses; and one of them, Orby, won the Derby in 1907.

Croker, Thomas Crofton (1798-1854), an Irish writer, b. at Cork. At a very early age he spent his time in collecting legends of the Irish people. His chief works are: *Researches in the South of Ireland*, 1824; *Fairy Legends and Traditions of the South of Ireland*, 1825-28; *Legends of the Lakes*, 1829.

Croly, George (1780-1860), an Eng. poet and preacher of great eloquence, b. at Dublin, and educated at Trinity College, Dublin. Entered the Church of England and was eventually appointed rector of St. Stephen's, Walbrook. Was a constant writer on all sorts of subjects, whether comedy, tragedy, satire, or poetry. Also contributed many articles on biography, romance, and theology to the current magazines. His best work was *The Romance of Salathiel*.

Cromarty: (1) Former co. of Scotland, including the promontory Ardmeanach, or Black Isle, at the head of Moray Firth, and numerous detached portions of land within Ross co.; now forming part of the co. Ross and C. (q.v.). (2) Parl. and municipal bor., seaport, vil., and par. of Scotland. The town is 5 m. from Invergordon, 9 m. from Nairn, 20 m. from Inverness. Birthplace of Hugh Miller, the geologist, to whom a statue was erected in 1859. The sheriff court is held here every alternate Friday afternoon. Manufactures rope, sacking, and sail-cloth, and has a herring fishery. Pop. (parish) 1619. (3) C. Firth, one of the finest bays in Britain, is a land-locked inlet of the N. Sea, on the N.E. coast of Scotland, N.W. of Moray Firth. It is 18 m. long, 3-5 m. broad, 5-35 fathoms deep. It is entered by a narrow strait between the N. and S. Sutors. The Three Kings Reef is about $\frac{1}{2}$ m. from land. There is a lighthouse at the entrance. Miller discovered fossil fishes (Pterichthys, Osteolepis, and others) in the Red Sandstone near.

Cromdale, a par. in Elginshire, on the Spey, 3 m. distant from Grantoun. Historically interesting on account of defeat inflicted on Jacobites by King William's troops in 1690. Pop. 3018.

Crome, John (1768-1821), founder of the Norwich School of Artists. Was of humble origin. The son of a weaver, he first became an errand boy; then he was apprenticed to a house painter. Mr. T. Harvey of Catton, observing his genius in his 'sketches' from nature, which he painted in his leisure moments, procured him a post as drawing master, and from now onwards C. was able to give up a great part of his time to the subject he loved. His drawing of trees, meadows, sky, and clouds was very faithful to nature. He also made a particular study of Dutch pictures, and earned for himself the title 'Eng. Hobbema.' In 1805 the Norwich Society of Artists assumed definite shape, and in 1808 he was elected president. His work received scant remuneration during his life. It was only after his death that the full value of his work became recognised. His best known productions are: 'Mousehold Heath' (National Gallery), 'Carrow Abbey,' 'View of Chapel Fields, Norwich,' 'Clump of Trees, Hautbois Common,' 'Fish-market at Boulogne,' 'Bruges on the Ostend River.' He also made a series of etchings of his own favourite Norfolk scenery.

Crome, John Bernay (1794-1821), a landscape painter, son of John Crome; his style is very similar to that of his father, and his pictures have consequently been sold as being the productions of the older and more experienced painter.

Cromer, a par. and seaside resort of England, situated on the N.E. coast of Norfolk, 20 m. N. of Norwich. It is beautifully sheltered on the land side by hills, and has become famous as a watering-place, on account of the fine bathing which can be obtained, and the splendid beach. The extensive golf-links add to its popularity. A new pier and promenades have been constructed. The sea has greatly encroached on the coast; the cliffs are protected by sea-walls. Fishing is the chief industry. The coast is extremely dangerous. There is a lighthouse visible for 23 m. Pop. 5436.

Cromer, Sir Evelyn Baring, 1st Earl of (1841-1917), b. Feb. 26, son of Henry Baring, M.P., and of Cecilia Anne, daughter of the Vice-Admiral Windham of Felbrigge Hall, Norfolk. Entered Royal Artillery in 1858; A.D.C. to Sir Henry Stokes in Ionian Islands in 1861; and appointed private secretary to the Viceroy of India during the years 1872 and 1876. He gained great fame for his administration of Egyptian affairs. It is due to his unremitting efforts that Egypt holds her present position among the

nations. Appointed Commissioner of the Egyptian Public Debt, and later Controller-General in Egypt, he changed the gov. from a state of threatened bankruptcy into a flourishing condition; but not until the cause of the trouble, in the person of Khedive Ismail, had been removed. Amongst other appointments, he acted as Agent and Consul-General in Egypt during the years 1883-1907. He had received K.C.S.I. for his Indian services; and was made Baron Cromer in 1892, viscount in 1898, and earl in 1901. It was due to his administration that the Sudan was restored to the rule of Egypt and the British empire, when the battle of Omdurman (1898) settled the question. Among his publications are: two volumes on *Modern Egypt*, 1908; and two volumes of *Political and Literary Essays*, between 1908 and 1916. Died in London, Jan. 29, 1917.

Cromlech (*crom*, bending, crooked; *llech*, stone), in archaeology, structures of a prehistoric age, often a



A CROMLECH IN DEVONSHIRE

circle of upright stone, as at Stonehenge. The name was formerly used also by British archaeologists for equally old structures consisting of a large, flattish, unhewn stone resting horizontally on three or more fixed vertically in the ground. These appear to be chambered, sepulchral mounds, found in the British Isles, N.W. France, Spain, N. Africa, Syria, and Japan. They mark the Neolithic age in Europe, and are now usually called 'dolmens,' or in Guernsey and elsewhere 'Druid altars.' The sepulchral chambers or cists beneath the mounds often contained a skeleton, with arms, stone implements, and various relics. Some attribute them to the Celts. The single stone may have been 'stones of bowing or wor-

ship' (see *Armstrong's Gaelic Dictionary*, 1825). Structures of note of this kind are numerous in England, in Devonshire and Cornwall; there is also Kit's Coty House near Aylesford in Kent, and two structures at Plas Newydd in Anglesey. In Scotland there are the Auld Wives' Lifts near Craigmaddie House, Stirlingshire, those at Stennis in Orkney, and the partially ruined Witch's Stone at Bonnington Mains near Edinburgh. See Keane, *Ethnology*, 1896; Leslie, *Early Races of Scotland*, ii., 1866; Borlase, *The Dolmens of Ireland*, 1897. See DOLMEN, MENHIR.

Crompton, a cotton mill and colliery dist. in Lancashire, 2½ m. distant from Oldham. Urban pop. 14,917.

Crompton, Samuel (1753-1827), the greatest improver of cotton manufacture through his invention of the spinning-mule, for which, however, he received little recognition. Born at Bolton, Lancashire, he lived a hard-working life as farmer and weaver. It took him five years' ceaseless toil to invent the machine which was to produce the finest yarn ever woven. His spinning-mule became the most popular one on the market, and was used in preference to the machines constructed by either Arkwright or Hargreave.

Cromwell, Henry (1628-74), a son of Oliver the Protector, under whom he served towards the end of the Civil War. He entered the army at twenty, and lived mainly in Ireland, accompanying Oliver there (1649) as colonel. In 1653 he was one of the Irish representatives in the Little (Nominated) Parliament. Major-general of Irish forces, 1655; lord-deputy, 1657, becoming popular by his moderate policy. Recalled to England (1659) after Richard's fall from power, he retired into private life. His great-grandson (d. 1821) was the last descendant of Cromwell's family.

Cromwell, Oliver (1599-1658), Lord Protector of England, b. at Huntingdon, was descended from a nephew of Thomas C., minister of Henry VIII. Educated at Huntingdon Grammar School and Sidney Sussex College, Cambridge, he studied law at Lincoln's Inn for a short period before marrying the daughter of Sir John Bourchier, and settled down in his native town. It has been said that he was fond of gaming and other low pleasures in his youth, but there seems to be no real foundation for these statements and indeed he is spoken of by others as a young man of deeply religious convictions. He sat for Huntingdon in the memorable Third Parliament of Charles I. (1628) and distinguished himself for

his zeal against the bishops. After the dissolution of this Parliament, he retired into the country to a grazing farm at St. Ives, where he became parish overseer and a zealous member of the religious community. In 1636 his maternal uncle, Sir Thomas Stuart, *d.* leaving him property in the Isle of Ely worth £500 a year, and thither, disgusted with the Government, he went with his family and, it is said, even thought of migrating to New England, actually taking a passage for himself and family and only remaining in England because the ship by which he was to have sailed was detained by proclamation. By such chances does the fate of kings hang in the balance! In 1639 he was returned to Parliament for Cambridge, having become a popular leader and styled 'Lord of the Fens' for having kept a part of that country in Cambridgeshire from being expropriated from the people by various rapacious landowners. He sat for Cambridge in the 'Short' and 'Long' Parliaments, 1639-40. Sir Philip Warwick mentions him with disfavour in Nov. 1640, recording with disgust that 'he was very much hearkened to.' On the outbreak of the Civil War he contributed freely to the parliamentary army-chest, helped to form the E. Association, which secured E. Anglia for his party, and joined the army as a captain. Impressed by the superiority of the cavalier horse at Edgehill, he conceived the idea of encountering loyalist enthusiasm with Puritan zeal and strict discipline. Raising a troop of 'godly men' in his own county, mostly yeomen, and training them himself, they proved so efficient that the whole army was gradually re-modelled on the same lines. At Marston Moor he and his 'Ironsides' turned defeat into victory, and at Naseby won the decisive battle of the campaign. For these victories he received the thanks of Parliament and a pension of £2500 a year. He was now not only the greatest soldier in England, but head of the Independents, who in 1647 seized the king's person at Holmby House, and thenceforward controlled the destinies of the country. After many attempts to make terms with Charles, all thwarted by his obstinacy and duplicity, there ensued the closing tragedy at Whitehall, the justice and expediency of which are still debated. To C. and his party it seemed inevitable, but the shock to public sentiment did much to efface the impression caused by previous years of tyranny. The Irish campaign, with the massacres of Drogheda and Wexford, left a

further blot on Cromwell's fame, though he put forward in justification the Irish cruelties of 1641, and the advisability of avoiding further bloodshed by striking terror into the enemy. The victories of Dunbar (1650) and Worcester (1651) enhanced his military reputation, and in 1653, impatient of parliamentary mismanagement and intrigue, he forcibly dissolved the House, and set up what was practically a military despotism, thus doing what Charles had lost his crown and life in attempting. He summoned another parliament, but this, though composed of members



OLIVER CROMWELL

selected by the Army Council, proved unmanageable, and resigned its powers Dec. 1653. Four days later, under a written constitution, drawn up by a mixed council of officers and civilians, C. was installed as Lord Protector, with a Council of State, and a parliament to be elected within nine months. The sovereign power was now within his reach and on Feb. 19, 1654, he was formally invested with the dignity of Protector of the Commonwealth of England, Scotland, and Ireland, in the Court of Chancery. As Protector, he pursued a vigorous policy, making the English flag respected wherever it was seen. As a ruler he was in many respects in advance of his time, introducing valuable reforms and projecting others which were defeated by the prejudices of his supporters. The principle of religious toleration was affirmed, but not allowed to apply in the case of Romanists and Anglicans, though

even towards these C. seems to have been less harsh than his officials. Jews and Quakers were treated with leniency, and even attacks on religion, though dealt with severely, were not so brutally punished as of old. A strict Puritan regime for the improvement of morals was enforced, but its harshness bred hypocrisy rather than true piety, and the reaction under Charles II. was a natural result. Education was encouraged, C. taking special interest in the universities. Though stern in repressing vice—*e.g.* he issued regulations to control racing—he was by no means so narrow as many of the Puritans; he enjoyed hunting and athletic sports, and was fond of music and pictures. He had enemies on all sides—Royalists, Presbyterians, Levellers, Anabaptists, Fifth-Monarchy men, all conspired against his rule, and many plots were formed for his assassination, but he did not alter his course. His latest years were not happy; the attempt to create a House of Lords signally failed, the heavy taxes and the strict rule of his major-generals produced widespread discontent, and the constant dread of assassination affected him deeply. The death of his favourite daughter, Mrs. Claypole, in 1658 quite broke him down, and his moodiness and proneness to suspicions were enhanced by the publication of a pamphlet by Colonel Titus, entitled 'Killing no Murder' and designed to justify the assassination of a 'tyrant.' Despite the attentions of his physician, he became ill of a fever and died on Sept. 3, the anniversary of his victories at Dunbar and Worcester. His body was interred in Henry VII's Chapel, whence, at the Restoration, it was taken and exposed on the Tyburn gallows. C. was one of the greatest statesmen and soldiers England ever produced. His foreign policy had two great aims, the honour and welfare of England and the maintenance of Protestantism. To extend our trade and colonies he fought with Holland and Spain; Blake's wonderful achievements and the conquest of Jamaica form part of this story. He established a council for trade and granted a charter to the East Indian Company, and his action at the time of the Vaudois persecution will never be forgotten. He raised England to a higher place among the nations than she held for many years before or after, and to him we may attribute the official foundation of our maritime greatness. Eng. sailors before had 'fought for their own hand'; C. made the navy a national institution. C. had six children:

Richard, Henry, Bridget, Elizabeth, Mary and Frances. Richard succeeded him in the Protectorate, but with the turn of the tide against him, he resigned and went abroad. (*See CROMWELL, RICHARD.*) Henry went to Ireland as lord lieutenant; Bridget married, first, General Ireton, and, afterwards, General Fleetwood; Elizabeth married John Claypole of Northamptonshire; Mary married Lord Fauconberg, and is supposed to have assisted in the restoration of Charles II.; and Frances married, first, a grandson of Earl Warwick, and, afterwards, Sir John Russell of Cambridgeshire. Of Elizabeth, the wife of C., it is said that she was a strong-minded woman and a constant spur to her husband in all his ambitions. An imposing statue, of the idealistic type, executed by Hamo Thornycroft, R.A., stands in Westminster in front of the walls of the Houses of Parliament—its fitting environment. See *Letters and Speeches*, ed. by Tho. Carlyle, 1845; Gardiner, *History of the Great Civil War*; Lives by Morley and Firth.

Cromwell, Richard (1626–1712), a son of Oliver the Protector; his successor from 1658 till May 1660. He had served in the army and in various parliaments under his father, but was not so strong or capable a man. The Long Parliament and heads of the army agreed to dismiss him from office, this decree being accepted without a struggle. *See* O. Cromwell (a lineal descendant of the Protector Oliver C.), *Memoirs of the Protector . . . and of his Sons*, 1820; Tangey, *The Two Protectors*, 1899; *Dict. of Nat. Biog.*; *English Hist. Review*, xiii. and xviii.

Cromwell, Thomas, Earl of Essex (c. 1485–1540), an ambitious Eng. statesman and courtier of Henry VIII.'s reign. He served in the Fr. army in Italy, becoming a good linguist while abroad; returned to England in 1513, and became a lawyer. He was a student of Italian politics and admired Machiavelli. From 1514 he entered Wolsey's service, serving him faithfully as secretary, and speaking in his defence in the House of Commons, 1529 (*see* Shakespeare's *Henry VIII.*, act iii.). He became privy councillor, 1531, and Henry's chief minister after Wolsey's fall, being one of the king's chief agents in bringing about the Eng. Reformation and in establishing Tudor absolutism. He advocated Henry's divorce from Catherine of Aragon by exercise of royal supremacy. In 1533 he was Chancellor of the Exchequer; in 1535 Vicar-General to enforce the carrying-out of the Act of Supremacy (1534). To him

were largely due 'the suppression of the monasteries' and confiscation of their property as a means of securing revenue, which earned him the title 'malleus monachorum' (hammer of the monks). Lord Privy Seal, 1536; Lord Chamberlain, 1539; Earl of Essex, 1540. His influence with the king at one time was very great, and he caused the downfall of men in the highest places, such as More, Fisher, Pole, and Courtenay. He crushed the Catholic revolt in the N. (Pilgrimage of Grace). C. was deservedly dreaded by and unpopular with both nobles and clergy. His fate was sealed partly by his agency in bringing about Henry's marriage with Anne of Cleves. Accused of treason, he was deserted by the king and executed. See Merriman, *Life and Letters of Thomas Cromwell*, 1902; Drayton, *Historie of the Life and Death of Lord Cromwell*, 1609; Hook, *Lives of the Archbishops of Canterbury*, vi., 1868; Froude's *History of England*, chaps. vi. to xvii., 1882; Van Dyke, *Renaissance Portraits*, 1905; Lingard, *History of England*, iv. 8.

Cronje, Piet Arnoldus (1835-1911), Boer general of Huguenot extraction. Was at one time member of the executive council of the Transvaal Republic, and chief native commissioner. He led his men against the British at Doornkop and Majuba Hill; was also responsible for forcing the garrison of Potchefstroom to capitulate, purposely suppressing the news of the armistice (1881). In 1895 he made the Jameson raid of no effect. On the announcement of the Transvaal war, he joined in the hostilities against the British, but was defeated in his attack on Kimberley. Gained a victory over Lord Methuen at the Modder R., and later at Magersfontein. Was forced to retreat before General French in the siege of Kimberley. In spite of the efforts of the two Boer generals, De Wet and Botha, to come to his aid, he was forced to surrender with a force of 4000 men and six guns at Majuba. He was sent to St. Helena, but was allowed to return at the end of the Transvaal campaign. Was a large landowner.

Cronstadt, in Russia, see KRONSTADT.

Cronus (called Saturnus by the Romans), identical with the Rom. god Saturn; C. according to the generally accepted version was the son of Uranus, one of the Titans, and of Ge, the earth. He married Rhea, by whom he had many children, among whom were Hera (Juno), Hades (Pluto), Poseidon (Neptune), and Zeus (Jupiter). He dispossessed his father of the throne of heaven, and

was ousted from it in like manner by his own son Zeus.

Crook, George (1828-90), an American general; b. in Ohio. Made himself famous both in the Civil War and in his resistance to the attacks of the Indians in Idaho during the years 1866-72, and again eleven years later at Arizona.

Crook and Billy Row, a parish in the co. of Durham, England, near Bishop Auckland. Pop. 12,706.

Crooked Islands, two islands of the W. Indies, belonging to the British group, Bahamas. They consist of Acklin, or Great Crooked Island, and Little Crooked Island. To the westward of Great Crooked Island is Castle Island, upon which is a lighthouse, whose light is visible at a distance of about 18 m. Another lighthouse is situated on Bird's Rock, W. of Little Crooked Island. The Spaniards took possession of them, but they were restored to England in 1783.

Crookes, Sir William (1832-1919), physicist and chemist; b. June 17, 1832, in London; eldest son of Joseph Crookes, a tailor. He was



SIR WILLIAM CROOKES

first a student at the Royal College of Chemistry under Hofmann; then made superintendent of the meteorological department of the Radcliffe Observatory, and gave lectures on chemistry at the Science College, F.R.S., 1863; and vice-president of

the Chemical Society, 1870. Obtained a prize of 3000 francs and a gold medal from the Fr. Académie des Sciences. An authority on all sanitary questions. Made many original discoveries in chemistry and physics; viz. of the metal thallium (1861), and of the rare earth monium or victorium. An expert in electricity; invented the radiometer and Crookes' Tubes. His chief contributions to literature are: *Select Methods of Chemical Analysis*, 1871; *Manufacture of Beetroot Sugar in England*; *A Solution of the Sewage Question*; *The Wheat Problem*. Knighted in 1897, president of British Association in 1898. Amongst the many contributions made by C. is his theory that all the elements have evolved from one primordial stuff, 'protyle.' His *Researches on the Phenomena of Spiritualism* (1874) contained matter that he never retracted, though it formed subject of regret with many colleagues who placed less trust in the good faith of all humanity. He d. in London, April 4, 1919.

Crookhaven, a fishing vil. in the co. of Cork, Ireland, 30 m. distant from Skibbereen. Pop. 152.

Crookston, chief city in co. of Polk, Minnesota, U.S.A.; situated on the Red Lake R., and some 150 m. distant from Winnipeg; Pop. 7599.

Crop, a term used in speaking of certain dilatations of the alimentary canal of some animals. It is situated in an anterior position to the true stomach, and serves as a reservoir for food. In birds it is often called the *craw*, and is noticeable especially in predaceous and granivorous species; in the C. of the pigeon are two small accessory sacs. Insects also have these dilatations immediately preceding the proventriculus. In some, e.g. bees, the food can be disgorged from the C. for the benefit of the young.

Cropredy and Cropredy Bridge, a par. on G.W. Railway in Oxfordshire, England, 4 m. distant from Banbury. C. Bridge is memorable for the victory gained by Charles I. over Waller, 1644. Pop. 409.

Crops. This general term for the agricultural produce of the soil, the return of the farmer's labour, has been classified in many ways. Thus we speak of the 'white crop,' that is of those plants such as wheat or barley and other grain which turn white as they ripen; of 'green crops,' those which are harvested green, such as clover, grasses, including also roots, potatoes, etc.; so, too, we have 'black crops,' especially used of beans and peas. A more convenient and more useful classification is now usually adopted, that of *Cereal*,

Leguminous, and *Root C.* The cereals include wheat, barley, oats, rye, maize; the leguminous, clover, beans, peas, vetch, sainfoin, lucerne; the roots, turnips, swedes, and mangels, and often also cabbage, kail, carrots, and potatoes. Further, there are special crops of importance to the world-production of the soil, such as rice and its congeners, and the industrial cotton crop. Farmers in very early times knew that the planting of the same crop in the same ground, year in year out, exhausted the soil; thus it is that in primitive times we find the 'extensive' system prevailing in which, after a piece of land was exhausted, the farmer moved on and exhausted another. Sometimes we find primitive peoples moving as a community as the soil was exhausted—nomad agricultural communities like the early Teutonic peoples mentioned by Tacitus and Cæsar. Virgil's *Georgics* exhibit a knowledge of rotation of crops, for he bids the farmer either lay his ground fallow every alternate year, or let the rotation of spelt or pulse, vetch or lupine prevent the exhaustion of the soil; and he combines copious manuring with rotation. The more full development of crop-rotation took place in England when the old common-field system of farming by small tenants still prevented any but the large landowner from making use of the scientific rotation of which Lord Townshend was the pioneer. By the beginning of the nineteenth century, rotation was nearly everywhere in force, and numerous systems, differing according to the nature of the soil, climate, altitude and general situation, etc., were to be found. In countries such as Italy, a very wide selection of following C. is made use of, and there a six or even eight years' system is found. In modern British farming roots or leguminous C. alternate with the cereals. It must be remembered that *cereals* are exhaustive, for not only do they not accumulate the nitrogenous and mineral constituents of the soil, but they are not used on the farm, and all they have taken from the soil is sold off, while roots and clover, as feeding stuffs for stock, return these constituents as manures. The famous 'Norfolk' four-course system, roots, barley, clover, wheat, is typical of the rotation system. The root-crop is also useful for allowing cleaning of the ground by hoeing between the rows. As to the exhaustion of the constituents of the soil, cereals take up more phosphoric acid than other crops except clover; and this therefore is lost to the soil, while it is retained by the roots consumed by

the stock; potash is less taken up by cereals than by other C. and little therefore is wasted. These are the main losses of minerals by the growth of C., and must be replaced by mineral manures. The root C. take up far more nitrogen than the cereals, but not nearly so much as the leguminous C., which are the great consumers of nitrogenous material. It is this fact that makes a C. like red clover such a splendid preliminary for a cereal C. This has been known as a practical fact by farmers in times long past (*see* Pliny, *Nat. Hist.*, viii.); its reason was not known till the experiments of Hellriegel and Wilfarth in Germany in 1888. Experiment had shown that a piece of land laid down for a long time in pasture and then sown for fifteen years with lupines contained thrice as much nitrogen as it contained before, which could only have come from the air. The test was made with leguminous plants in sterilised soil side by side with oats and barley. They were both obliged to be fed with nitrogenous manures. With a mixture of non-sterilised soil, the leguminous plants developed nodules at the roots and flourished without manure; these nodules are found in all leguminous plants growing in natural, non-sterilised soils, and are caused by micro-organisms, *Bacteria radiculicola*, which absorb nitrogen from the air through the nodule, break down, and in turn are absorbed by the plant. Cultivations of these bacteria are made and sprayed on the plants, and have an important effect in increasing agricultural C.

Croquet. Antiquarians have traced the descent of this game from Pell Mell or Pall Mall, Fr. *paille-maille*, which was fashionable at the end of the seventeenth century in London, and was played with hoops, a ball, and mallet, the object being to run a ball through the hoops and strike a peg in the fewest strokes. The game, much as it is played to-day, seems to have been first played in Ireland in 1852, and it became popular before 1860. As then played, there were ten hoops with a double hoop or cage in the centre. In 1863 the All England Croquet Club was formed, and championship games were played at Wimbledon. For some years C. was played everywhere where a lawn was available, but it was a family or garden-party game. Lawn tennis practically killed it, and a revival in a new form did not take place for some twenty years. In 1897 was formed the Croquet Association, the ruling body, with the centre of the game at Roehampton. The new C. is very scientific, and the utmost

skill and care are exercised in the laying of lawns, in the selection of mallets and the making of the balls. The ground is a level grass lawn 35 yds. long by 28 yds. wide; 7 yds. from the centre of each base or shorter line are two pegs; there are six hoops of iron rods, $\frac{1}{2}$ to $\frac{3}{4}$ in. in diameter, 12 in. from the ground when fixed, $3\frac{1}{2}$ in. wide (for championship play, 1910, but 4 in. hoops are used). The hoops are placed thus (the unit of measurement from line 1, etc.): Nos. 1, 2, 3, and 4 are placed at the angles level with the pegs and 7 yds. distant from them and from the base and side lines; Nos. 5 and 6 are placed in the centre between the pegs, 7 yds. from each peg and from each other. The order of playing hoops is 1, 2, 3, 4, 5, 6, hit turning peg. then 2, 1, 4, 3, 6, 5, and winning peg. No. 5 is the 'rover' hoop. There are four balls, $3\frac{1}{2}$ in. diameter, and 15 oz. to 16 oz. in weight. Composition balls are now used for match play, but the older boxwood type are still common. Two, playing two balls each, or four, playing one ball each, are the number of players, blue and black against red and yellow, the order of play being blue, red, black, yellow. Each player has a metal clip, coloured as his ball, which must be placed on the hoop or peg next to be passed through or struck. The mallets must have wooden heads with straight faces exactly alike, the head usually weighing about 3½ lb. The points of the game are scored by each ball passing the hoops and striking the pegs in order, and the winning player (or two players in partnership) is he who makes all possible points with both balls. The ground is marked with a white chalk band round base and side lines and a spot three feet from the lines is placed at each angle. The start of each player is made from any point between the centre of the base line and the left corner and 3 ft. from the base line, which is behind the winning or last peg. Two terms used in the game need to be explained: 'roquet' is to strike another ball with one's own; 'croquet' is, after making a 'roquet,' to take up the striking ball, place it against the ball struck wherever it may have rolled, and then play so that both the balls in contact are moved. If a player fails to make a 'point,' i.e. to pass through a hoop or strike a peg (or both, in, of course, the proper order as stated above), or if he fails to 'roquet' another ball, he loses his turn, and the next player in turn plays. If he succeeds in making a point, he has another stroke; if he 'roquets,' he then takes 'roquet,' plays the stroke or has another stroke after the balls

have been struck or 'croquetted.' In the old game, the player could place his foot on his own ball, but this has disappeared in the new game. Also opponents' balls could be driven out of play; now no ball must be 'croquetted' across the boundary line; if it is, the player does not play his second stroke and loses his turn. The ball out of bounds is replaced 3 ft. from the line where it crossed. It can be seen that with a true lawn and a knowledge of tactics the game can be as skilful in combination and in power of leaving balls for the next stroke or strokes as billiards. Special attention must be given to the various strokes made in making 'roquets.' If the player wishes to take his second stroke at some distance he 'rushes' the object ball, that is, strikes it so hard that it travels a considerable distance. A skilful player can, with his ball, cut the object ball so that it goes off at an angle; he may by striking his ball at the top make a follow through as in billiards. 'Wiring' an opponent, i.e. leaving his ball so close to a hoop or peg that he has no free stroke at an object ball, is another test of skilled play. If, however, an opponent is wired so that no object ball is possibly available, he may lift his ball and go back to the starting point or 'baulk.' The best way of holding the mallet and standing has been much discussed. A swing or 'pendulum' stroke is from every point of view the best, and it may be made either by standing facing across the ball and swinging the mallet between the legs, or by standing with both feet in a line parallel with the ball and swinging the mallet with the right hand lower down and the left at the top; but the methods of grip are as various as those of golf. There is an elaborate system of handicapping for tournaments. In the United States the older form of C. has survived, but a special form, known as 'roque,' extremely scientific, answers more to the scientific modern English C. It is played not on grass, but on an artificially prepared ground which is 60 ft. by 30 ft., with four corners cut off 6 ft. in length, thus making a hexagonal court. There are ten hoops and two pegs which stand 12 in. and 18 in. out of the ground respectively. The most marked difference in the game is the rubber-faced board surrounding the ground against which a player may strike his ball and cause it to rebound into play, as off a billiard cushion; this stroke is called a 'carom.' See the Croquet Association's *Laws of Croquet*, and periodical *Croquet Gazette*. There are many good books on the scientific methods of play, as C. D.

Locock's *Modern Croquet Tactics*; also the *Official Royal Guide*, New York.

Cre (Hindu *karor*), an Anglo-Indian word for 10 millions or 100 lakhs (usually) of rupees. It is also spelt *kraur*, *courou*, *carror*, etc., and represented by Rs. 1,00,00,000 (or in official papers Rs. 1,000,000, one million tens-of-rupees). The value is about £666,666 13s. 4d. in English money, or \$5,000,000.

Crosby, two seaside parishes, Great Crosby and Little Crosby, of Southport, a rising seaside resort in the county of Lancaster, England. Pop. (1911) G. C., 13,721; L. C., 1123.

Crosby (married name, Van Alstyne), Frances Jane (1820-1915), American hymn-writer; b. at Southeast, Putnam co., N.Y.; dau. of John Crosby. Blinded in infancy; in 1835 entered N.Y. Institution for the Blind; there graduated (1844) and taught (1847-58). Married, 1858, Alex Van Alstyne, blind music-teacher (d. 1902). Wrote hymns whose world-wide popularity is largely due to fortunate settings. 'Safe in the arms of Jesus' is best-known; 'O hear my cry'—with its refrain 'Come Great Deliverer'—is peculiarly haunting. Died at Bridgeport.

Crosby, Howard (1826-91), an American preacher, b. in New York; graduated at the University of New York City; and was professor of Gk. there in 1851, and at Rutgers College, New Brunswick, N.J., 1859. He was chancellor of the University of the City of New York, 1870-81, and in 1873 moderator of the Presbyterian Church. He took a prominent part in politics and social reform. His son, Ernest Howard Crosby (1856-1907), a social reformer, was born in New York City and graduated at its University, 1878. He was president of the Social Reform Club of New York City and the New York Anti-Imperialist League. He pub. many works in the manner of Walt Whitman.

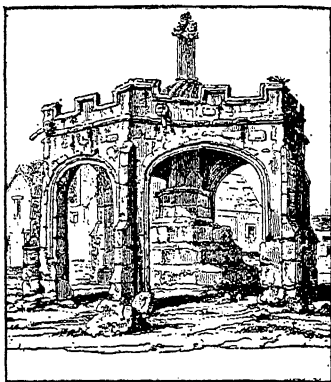
Crosier, or Crozier, originally, 'bearer of the crose,' but in the fifteenth and sixteenth centuries both 'crose' and 'cross' began to be confounded as 'crosse' (see Murray's *English Dictionary*). The C. was originally the bearer of the episcopal crook (*crociarius*); finally the crook itself was called C. It is now the pastoral, crook-headed staff, one of the insignia of the bishop, carried before both bishops and archbishops. Probably derived from the *lituus* of Roman augurs. See Taylor, *Archæologica*, 52, 'On the Use of the Terms Crosier, Pastoral Staff, and Cross.'

Cross, a river which rises in the German territory of Kamerun in W.

Africa, and then flows mainly through the Oil Rivers Protectorate, a British possession. This river is navigable for three-quarters of its course and enters the Bight of Biafra.

Cross (Lat. *cruz*), the intersection of two pieces of wood at right angles. In ancient times the C. was a very common means of punishment. As such it seems to have been Phœnician in its origin, though it was used by Indians, Persians, Medes, Greeks, and Romans. The original form of crucifixion was by fastening or impaling the victim on a stake, the *cruz simplex*. But the various forms of the *cruz compacta* are better known. The *cruz commissa*, known also as the Tau and C. of St. Anthony, consists of an upright with the cross-piece at the top. In the *cruz immissa*, or Latin C., part of the upright extends above the cross-piece. This is the form best known in the W., and the Greek C., where the four arms are of equal length, may be considered a variant of it. The *cruz decussata*, saltire or St. Andrew's C., so called because tradition relates that St. Andrew suffered martyrdom on a cross of this shape, is formed of two beams crossing each other obliquely. From these four varieties countless smaller types of C. have been evolved by Christian symbolism. Though so far we have only spoken of the C. as an instrument of death and disgrace, yet even before the time of Christ it was also in use as a religious emblem. By the ancient Egyptians the *cruz ansata* was regarded as the symbol of life, and in Gaul it was a symbol of the sun. The Spanish conquerors of S. America were greatly astonished to find the symbol of the C. venerated in that country, where it was the sign of the god of rains. In the reign of Constantine, the sign of the C., in the form known as the *labarum* or XP, became the official standard of the empire. In 325, tradition tells us that St. Helena, the mother of Constantine, made a journey to Jerusalem to seek the true C. Her investigations resulted in the discovery of three Cs., and by the advice of Macarius, patriarch of Jerusalem, a sick woman was laid on them in turn, that the C. of Christ might be discovered. When laid on the third, she regained her health, and the miracle was considered conclusive. Relics of the C. spread throughout the world, and the Feast of the Invention or Finding of the C. is celebrated in the Western Church on May 3. The Feast of the Exaltation of the C., celebrated E. and W. on Sept. 14, commemorates its recovery by Heraclius (A.D. 628) after capture by the Persians. The high veneration which was paid to

relics of the C. during the early ages led to the great iconoclastic controversy. The iconoclasts wished to do away with such veneration, but the Church decreed that *latreia* (adoration) might indeed be paid to the wood of the C., though the worship is referred back to the person of the Crucified. In the mediæval Eng. Church and the Roman Catholic Church the worship of the C. takes place on Good Friday. During Passion-tide all the Cs. in the church have been veiled in violet, and on Good Friday the veils of the altar C. are removed at the singing of the anthem, 'Behold the wood of the C. on which hung the Saviour of the world.' It is then solemnly laid on the altar steps and kissed with great reverence by the sacred ministers.



THE MARKET CROSS, CHEDDAR

Another smaller C. is similarly venerated by the people. The early and deep hold which the veneration of the C. took on the English mind is shown by Cynewulf's wonderful poem, *The Dream of the Rood*. The sign of the C. was made in the early Church with the thumb, on forehead or mouth. In the Eastern Church it is made with the first two fingers and the thumb, from forehead to breast, then to the right shoulder and then to the left. The general Western use is from left to right with open hand, though Lutherans use only the thumb. The placing of a C. or crucifix over the altars of churches is common to Roman Catholics, Anglicans, and Lutherans alike; but many extreme Protestants refuse the use of the sacred sign as a mere superstition of human invention. *Processional crosses* are those used to

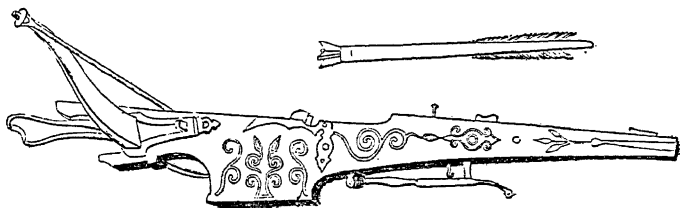
head ecclesiastical processions, while *pectoral crosses* are worn on the breast by bishops. In the case of metropolitans, an *archiepiscopal cross* takes the place of the bishop's crosier.

The various kinds of Cs. in upright architecture must now be considered. The *sanctuary crosses*, usually covered with exquisite sculptural design, marked the verge of a sanctuary. These and the *boundary* or *monumental crosses* consist of an upright pillar or obelisk set in a heavy socket level with the ground. Sometimes they marked boundaries, but it is generally believed that most of them were erected to mark the grave of some king, bishop, or important hero. The oldest of these Cs. are connected with Scandinavian buildings and, from the fact of their bearing inscriptions in runes, are known as *runic crosses*. The Ruthwell C. is a good example of this kind. It is said that the island of Iona once contained 360 monumental Cs., but only one, that of

an integral part of British history, but its exact form is unknown. It was demolished in 1643 as an offence to the Puritans. The present C., surmounted by a picture of St. Paul, was erected in 1911 as a memorial, and is also provided with a pulpit for giving addresses. The Scottish town Cs. early lost their religious character, and were used for the announcement of royal and civic proclamations. See Mortillet's *Signe de la Croix avant le Christianisme*, Paris, 1866; Bingham's *Antiquities of the Christian Church*; Cutt's *Manual of Sepulchral Slabs and Crosses*; Veldener's *History of the Holy Cross*, 1863 (reprinted); Löckler's *Das Kreuz Christi*, 1875.

Cross, Mary Ann, or Marian, see ELIOT, GEORGE.

Cross, Sir Richard Assheton, first Viscount (1823-1914), an English politician, b. near Preston, and in 1868 defeated Gladstone in S.W. Lanarkshire by 313 votes. Although



CROSS-BOW AND QUARREL

St. Martin, is now standing. The famous *Eleanor* or *Norman crosses* are well known. They were erected in 1290 by Edward I. on his way to Westminster with the body of his wife Eleanor. At each place where the body rested for a night a memorial C. was erected. Ten or more, of which those at Geddington, Northampton, and Waltham are restored originals, were erected between 1291 and 1294. That at Charing was destroyed in the seventeenth century, the present C. being a modern copy. *Town* or *market crosses* were generally erected in the market-places of towns and villages as pulpits whence sermons and addresses might be given. There are some excellent examples of these structures in England, in which country they were best developed. That of Cheddar in Somersetshire consists of an open vaulted structure with plenty of space where shelter may be taken from the rain. In the centre rises the base of the C. which surmounts the whole. The famous Paul's C. was erected by Henry III. in 1259. The many important sermons preached from it have made it

of comparatively untried ability he was appointed by Disraeli in 1874 to the post of Home Secretary with a seat in the Cabinet. He was responsible for the following enactments: The Artisans Dwellings Act, 1875; the Factory and Workshops Act, 1878; the Criminal Law Amendment Bill, and the Housing of the Working Classes Bill, 1885.

Cross, Southern, see SOUTHERN CROSS.

Crossbill, a bird of the genus *Loxia*, native of Europe, Asia, and N. America, chiefly in pine-forests. The C. gains its name from its curious bill, in which the upper mandible crosses over the lower one at the point. This enables them easily to tear and break the scales of the pine-cones on which they chiefly feed. The common red C. (*Loxia curvirostra*) is the best known, and occurs sometimes in Scotland. The plumage of the female is orange-green or grey-green. It only occurs in England as a migrant.

Cross-bow, or Arbalist, a weapon used chiefly during the twelfth and thirteenth centuries, after which it

gave place in England to the less cumbersome long-bow. It consisted of a bow, made of wood, iron, or steel, attached to a wooden stock, similar in shape to the butt of a musket. The bowstring was pulled back by a lever, which in the smaller instruments was worked by hand or foot, and held in position by a notch. The bolt or 'quarrel', consisting of a short stout winged shaft with metal point, was laid in a groove at the top, and the string was released by a trigger. The larger Cs. may almost be considered as engines of war, so cumbersome were they. See Sir R. Payne-Gallwey's monograph, *The Crossbow*, 1903.

Cross-Country Running had its origin in school steeplechases held at Rugby, Shrewsbury and Eton. In 1867 a cross-country race was inaugurated by the Thames Rowing Club. Various clubs for C.C.R. then came into being, and in 1876 the first National Championship was held at Epping Forest. All the competitors lost their way. In 1929 the National Championship was won by the Birchfield Harriers for the sixteenth time since 1877. An International Championship was formed in 1902, and England were the first winners, Alfred Shrubbs being the Eng. champion. In 1929 France won the International Championship, although England had first man home in W. M. Cotterell. The Cross-Country Race was omitted from the Olympic Games for 1928 as an unsuitable event for a summer programme. In 1924 Nurmi was the Olympic winner.

Cross-Examination, see EVIDENCE.

Crosshead. The C. in an engine is the block which, fixed at the end of the piston-rod, works between parallel guides, and so takes up the side-ward thrust due to the obliquity of the connecting-rod, thus enabling the piston-rod to work in a straight line. It is generally made of cast iron, but is also of wrought iron or cast steel, and the slide bars between which it works are of wrought iron or steel with bearing surfaces of brass.

Crossley, Ada (1874-1929), a famous Australian contralto; b. March 3, 1874, at Tarraville, Gippsland, Vict.; daughter of Edwards Wallis Crossley; mother related to poet Cowper. Educ. at Port Albert, Gippsland; taught music by Alberto Zelman and Fanny Simonsen. In London, after four months under Sir Chas. Santley, sang first at Queen's Hall, May 18, 1895. Married, 1905, Francis F. Muecke.

Crossley, Sir Francis (1817-72), b. at Halifax, and became a celebrated English manufacturer in the

carpet trade. He accumulated an enormous fortune, which he dispensed very liberally on the Congregational Church and on various charities in connection with his own native city. His business success was obtained by the introduction of steam instead of manual labour and to the system of patenting new inventions.

Crossmolina, a tn. and par. in the maritime co. of Mayo, Ireland, and situated in the barony of Tirawley. Pop. par. 4065, tn. 529.

Crossword Puzzles. The C. P. consists of a diagram made up of numbered and blocked-in spaces, the numbered spaces ultimately to contain letters and the blocked-in spaces to show the beginning or termination of a word. When the letters are all filled in, they help to form words arranged horizontally and vertically. Clues to the words are given with the diagram, and may be either straightforward or deliberately ambiguous. The most usual diagram consists of a square of fifteen spaces each way, the blanks forming a symmetrical pattern, but oblongs and pictorial shapes are often used, and in some cases a thickened line takes the place of the blocked-in space. The vogue of the puzzle has lasted for a remarkably long time in England, practically all newspapers and many magazines supplying crosswords for their readers; the daily *Times* succumbed to them in 1930, after holding out for seven years. The majority of crosswords have simple solutions, but the *Times* and *Telegraph* variety give scope for research, while those set by 'Torquemada' in the *Observer* are recognised as affording mental recreation and stimulus for scholars. Various periodicals have organised C. competitions, usually with alternative solutions for many words, only chance directing the right choice of solutions. The '*jeu de mots croisés*' has attained a certain popularity in France, and the *Morning Post* has published several C. in Fr. for Eng. readers. The *Times* has issued several in Latin. C. P. have also been used with success for commercial advertising purposes.

Crotalus, a genus of ophidian reptiles or pit-vipers, a sub-family of Viperidae. There are about eleven species, characterised by the presence of a rattle and the covering of small scales on the top of the head. All are to be found in America, and are known as rattle-snakes. *C. Loricatus*, a native of the United States, is the common rattle-snake (*q.v.*). Two other familiar species are *C. terrificus*, and *C. durissus*.

Crotch, William (1775-1847), a celebrated musical composer, b. at

Norwich. Principal of Royal Academy of Music in 1822. He composed music for the organ, piano, and voice, and wrote *Elements of Musical Composition and Thorough Bass*.

Crothers, Rachel, American playwright, b. 1878 at Bloomington, Ill.; daughter of Dr. Eli Kirk C. Educated at State Normal Univ. of Illinois, Bloomington. Joined Stanhope-Wheatcroft School of Acting, and appeared in Felix Morris's company and others. Her play *Nora* was produced in New York, Sept. 1903. Her late plays include: *The Three of Us*, 1906; *Mother Carey's Chickens* (with Kate Douglas Wiggin), 1917; *Let Us Be Gay*, 1929.

Croton, a large tropical genus of Euphorbiaceæ, contains many species with important medical properties. *C. cascarilla* is a native of St. Domingo and Florida, and yields the cascarilla bark. *C. Tiglium*, an inhabitant of the Moluccas and Ceylon, is one of the most active and drastic of purgatives, wood, leaves, and fruit all containing the property. The seeds were formerly called grains of Tilly or Molucca grains, and the oil expressed from them is the powerful C. oil. The oil consists of a mixture of fatty acids and their glycerides, notably acetic, butyric, valeric, and methyl crotonic acids; the purging quality of the oil seems due to crotonic acid. A single drop administered internally acts as a drastic purgative; its action is too powerful for ordinary use, but it is employed with good effect in the case of unconscious or insane patients. *C. lacciferum* furnishes a very fine lac and a brilliant varnish; *C. sanguifluum* yields a deep red resinous substance resembling dragon's blood (q.v.); *C. balsamiferum* is aromatic and the liqueur called Eau de Mantes is distilled from it.

Croton, a riv. of New York, U.S.A., and a trib. of the R. Hudson, into which it flows when about 35 m. distant from the city of New York. It helps to supply that city with water.

Crotona or Croton, a Greek colony founded from Achæa (710 B.C.) in Calabria, Italy. It is the modern Cotrone, on E. coast, in the prov. of and 30 m. from the city of Catanzaro. By 510 B.C. it was strong enough to destroy its neighbour, Sybaris. It was famous in antiquity for the school of Pythagoras, a school of medicine, and as the birthplace of Milo, the athlete. Later it lost its independence, and became part of the Roman empire. The present Cotrone has walls, a citadel, a cathedral, and a castle, and is about 6 m. from Cape Colonne. Liquorice root is grown. Pop. (commune) 11,600. See Smith's *Dictionary of Greek and Roman Geography*.

Crotophaga, a sub-family of the family Cuculidæ (cuckoos), peculiar to the New World, including several species. The chief member is the Ani, Black Parrot, or Savannah-bird, which extends from the southern States of N. America throughout most of S. America. Its plumage is glossy black, and its strange shape has also gained it the name of the Black Witch.

Croup, a spasmodic affection of the larynx in children, usually accompanied by the formation of a false membrane. The application of the term is now very uncertain, as many conditions formerly called C. have been identified with other diseases. The safest plan is to suspect diphtheria wherever the exudation of a false membrane is apparent. It is possible that bacilli, other than the diphtheria bacilli, may give rise to membranous growths, but all such cases must be regarded as doubtful, and recourse should be had to diphtheria antitoxin. A croupous condition may be due to catarrh of the larynx, when the treatment should aim at reducing the inflammation and removing any obstructive matter causing difficulty in breathing. *Laryngismus stridulus* is a spasmodic affection of the larynx, threatening asphyxiation. The attacks are sudden in their onset and cease just as suddenly. The throat should be examined for adenoids, as they probably constitute the cause.

Crow, bird of the genus *Corvus* of the family Corvidæ. The family is distributed over almost the whole of the globe, though there are very few species in the eastern part of Australia, or in S. America. They include Cs., magpies, jays, and choughs, and may be subdivided into a large number of species. The colour of the true C. is black, generally a glossy black, often tinged with white at the edges of the feathers. But more distant members of the family are brownish: the jackdaw has grey at the back of the neck, and the hooded C. (*Corvus splendens*) is grey on the back and under parts. The choughs also vary from the common black in their red feet and red or yellow bills. The Corvidæ have strong and generally straight bills, with no notch in the upper mandible. The wings are long and pointed, except in the jays and magpies, where they are shorter. The tail is long and graduated, usually with twelve rectrices, of which the two middle ones are longer than the others. The C. is regarded by many naturalists as the highest family of birds. The intelligence of all of them is great in the extreme, and innumerable stories are told of their craft and cunning. Many of them vary their

own disagreeable notes by imitating those of other birds. Among these the American blue jays are the most noted. They may also be taught to imitate the human voice. Cs. are omnivorous, eating animal, fish, and vegetable foods indifferently. They show themselves very adaptable to circumstances, and devour almost anything edible.

Crowberry, or *Empetrum nigrum*, a species and genus of Empetraceæ which grows chiefly in the N. temperate zone and in the Andine Mts. The plant is an evergreen shrub with small, crowded leaves, and the fruit is a black edible berry of a juicy nature, sometimes used in making wines. The fruit owes its name to its reputation for attracting crows, and in rookeries it is often used for decorative purposes.

Crowder, Enoch Herbert, American soldier and military lawyer; b. in Missouri, 1859; son of John Herbert C. Graduated at U.S. Military Academy, 1881, and served with 8th Cavalry against Apache and Sioux Indians. Served in Philippines 1899-1901 as Associate Judge of the Supreme Court. In Manchuria with Japanese Army 1904-5; in Cuba as Secretary of State and Justice, 1906-8. Delegate to Pan-American Conference, and special mission to Chile, 1910. Brig.-General and Judge-Advocate-General, U.S., 1911. Provost-Marshal, 1917-1919. When the U.S.A. entered the Great War, C. took a large share in framing the rules under which conscription was enforced and under which all the able-bodied men in the U.S.A. were registered and while more than 4,000,000 were called to the colours. Reappointed Judge Advocate-General, 1919. In Cuba on invitation of Cuban Govt., March 1919, about change in election law. There as President's representative, 1921-23; ambassador there, 1923. Retired 1927.

Crowe, Sir Eyre Alexander (1864-1925), civil servant in the British Foreign Office, was b. at Leipzig; third son of Sir Joseph Archer Crowe, Consul-General there. His mother was a German, Fräulein Asta von Barby, of Gotha. Educ. at Düsseldorf, Berlin, London and Paris. Entered Foreign Office in 1885. In 1907, British delegate at second Hague Conference. In 1911, awarded the K.C.M.G. for success in arbitration, at Hague, over recapture of an Indian agitator on Fr. soil. Assistant Under-Secretary for Foreign Affairs, 1912. Before the Great War, he made a Memorandum on foreign relations, which was useful when the War broke out. Attended Paris Peace Conference as Minister Plenipo-

tentiary, and on Nov. 27 1920 was made Permanent Under-Secretary.

Crowfoot, see *RANUNCULUS*.

Crow Indians, also called **Sioux**, or **Dacotahs**, a tribe of N. American Indians inhabiting the Dacotah ter.; more civilised than the other tribes.

Crowland, or **Croyland**, a par. and tn. of England, situated in Lincolnshire on the R. Welland, 8½ m. N. of Peterborough. There are the ruins of an ancient abbey, which was built by Ethelbald in 716, and which has had a remarkable history. The Danes destroyed it in 870, and in 948 it was rebuilt, after which it was twice burned and twice rebuilt. There is also an ancient bridge, built in the fourteenth century, upon which is a statue supposed to represent Alfred, or possibly Ethelbald. Ingulphus was abbot of C. from 1076 until 1109. Pop. 2707.

Crowle, a par. and tn. of Lincolnshire, England, situated in the Isle of Axholme, and extending into the W. Riding of Yorkshire. It is 5 m. E.S.E. of Thorne by rail. Pop. 3010.

Crowley, Crole, or **Croleus, Robert** (c. 1518-1588), archdeacon of Hereford in 1559, and four years later prebendary of St. Paul's. Equally celebrated in the printing trade. He gave to us the first metrical version of the psalter in print and also brought out an admirable typographical edition of the *Vision of Piers Plowman* in 1550.

Crowley, cap. of Acadia parish, Louisiana, U.S.A. centre of a rice-growing country. Pop. 7656.

Crown, the name of various coins which represent different values in different countries. The origin of the word C. is to be found in the Fr. word *couronne*, the name of a gold coin issued by Philip of Valois in the early fourteenth century. Towards the close of the same century another Fr. king, Charles VI., issued a coin called the *écu de la couronne*. The C. did not appear in England until the reign of Henry VIII., and then it was a coin consisting of a mixture of gold and silver, the value of which represented five shillings. It was in the reign of Edward VI. that the image of the king appeared stamped on the back of the coin, and seated on his horse bearing the royal shield of arms. Queen Elizabeth appeared crowned in the later coins. The C. of Charles II.'s reign was covered with four shields typifying England, Scotland, Ireland, and France. At the present time the C. is worth five shillings in England. The C. of Denmark, Norway, and Sweden is very small in value and represents the sum of one shilling and three halfpence.

Crown (Lat. *corona*), known from

very ancient times as a headdress for kings, priests, or warriors. Cs. were used by the Egyptian kings, often very elaborate in style, but extremely simple at the time of the Ptolemies. In classical times the C. was usually a circular ornament of metal, in the form of a chaplet of leaves or flowers, worn on solemn and festive occasions. Among the Greeks it was an emblem of office (as in the case of the archons), or frequently a reward for victors in the Hellenic Games (Olympic, Isthmian, etc.). As a reward for exceptional services to the state it was a much-prized honour among the Romans. Among the various kinds were the 'corona obsidionalis' of grass or wild flowers, given to the general

laurel C., or radiating C. (symbolising the deification of the emperors). The diadem of Constantine the Great was replaced in the sixth century under Justinian by the 'stemma,' an elaborated golden fillet. Still more elaborate Cs. succeeded this in turn, until the present arched C. became the usual form. At the Norman Conquest a circle of pearls set in gold was the C. of English kings. In the twelfth and thirteenth centuries this was heightened by strawberry leaves or trefoils. That of Henry IV. had strawberry leaves and fleurs-de-lis alternately, with sixteen small groups of pearls. Edward IV.'s was arched over with jewelled bands of gold closing under a mound ensigned by a cross patee,



CROWN (CHARLES II)

who rescued a besieged army; 'corona civica' of oak-leaves and acorns, given to the soldier who saved a fellow-citizen's life in battle; 'corona navalis,' a gold circlet ornamented with beaks of ships for the winner of a naval victory; 'corona muralis,' similarly adorned with battlements, for the first who scaled the walls of a besieged city; 'corona vallaris,' with palisades, for the first to break into the enemy's camp; 'corona triumphalis,' awarded to the general who was granted a triumph. Among the emblematical Cs. were the 'corona sacerdotalis,' worn by those engaged in sacrifice; 'corona funebris' or 'sepulchralis,' for the dead; 'corona convivialis' of banqueters; 'corona nuptialis' or bridal C. In Germany, Norway, and mediæval England the bridal wreath or C. was often of metal. As used in modern times for an emblem of sovereignty the C. was borrowed from the diadem (fillet of silk or wool) of Oriental origin. Alexander the Great adopted this from the Persian kings. Roman emperors are represented with the diadem,

crosses patee replacing the strawberry leaves, and roses or fleurs-de-lis the pearl clusters. The imperial C. used from Charles II.'s reign to that of William IV. has four crosses patee and four fleurs-de-lis alternately, while two complete pearl-studded arches rising from the crosses have the mound and cross at their intersection; George V. wears this same C., known as 'St. Edward's.' Queen Mary's is the imperial C. made for Queen Victoria, 1838. It contains many ancient jewels, notably the lovely spinel ruby of the Black Prince, the sapphire from Edward the Confessor's ring, and the Stuart sapphire. (See Wickham Legg, *English Coronation Records*, 1901.) The pope's C. is a high, uncleft mitre, with three circlets, decorated with ribbons, and surmounted by the ball and cross. The C. of the former Austrian empire was cleft in the centre, but resembles the mitre in appearance. This style was adopted by Maximilian II. in 1570. A single arch surmounted by mound and cross rose from the cleft. The C. of Scotland,

discovered in 1818 with other regalia in Edinburgh Castle, probably dates (with the exception of its arches) from the days of Robert Bruce. The iron C. of Lombardy, restored to the King of Italy, 1866, was a gold circle with a thin fillet of iron inside, said to have been hammered from a nail of the true cross, alleged to date from the time of Pope Gregory the Great (A.D. 590-604). The C. of the German empire had eight shields, the larger bearing the cross, the smaller the imperial eagle. There were four arches surmounted by mound and cross. Cs. are often seen in heraldic bearings or coats-of-arms.

In constitutional law and practice, 'the Crown' is a comprehensive symbolical expression denoting the members of the legal sovereignty in whom is vested the supreme executive power. The executive government of the British empire is carried on in the name of the C., and all its public acts are theoretically done by right of the royal prerogative. But all public acts of the C. are also done on the advice of the ministers of the C. with the result that the formerly personal prerogatives of the king have become the privileges of the executive, which by the conventions of our unwritten constitution are in their turn a reflection of the privileges of the people. The C. as a term connoting the king and his ministers expresses the responsibility of the latter for every public act of the former and the expressions 'descent of the C.' or 'succession of the C.' therefore mean the devolution of the paramount executive power from one monarch or titular head to his successor. The result of the constitutional limitations on the king's theoretical sovereignty is that the prerogative of the C., which Blackstone defines as 'a special pre-eminence which the king hath, over and above all other persons, and out of the ordinary course of the common law in right of his royal dignity,' has become gradually narrowed in its content. The term prerogative, as indicating the ancient customary powers of the C. springing from the early character of the kingship as a tribal chieftaincy and later the feudal overlordship, is in these days better regarded, in Professor Dicey's words, as 'nothing else than the residue of discretionary or arbitrary authority which at any given time is legally left in the hands of the C.' It is a term which has caused much perplexity to the constitutional lawyer, but the various rights, privileges, and attributes composing the prerogative are clear. The common law prerogatives of the C. or the privileges of the

executive comprise various legal attributes of sovereignty, privileges resulting from those attributes together with certain powers which may be said either to be inherent in any sovereign entity, or which are merely the survivals of more ancient times. The attribute of perfection of judgment expressed in the maxim that 'the king can do no wrong' puts the C. above the law, but results in the practice that ministers are liable for all royal acts, and that no administrative act can be done by the C. without the counter-signature of some responsible minister. The maxim is subject, however, to the curious interpretation that when the king makes an illegal grant or wrongfully confers a franchise, he has merely been 'deceived in his grant,' with the consequence that the grant can be upset as contrary to public justice. The C. has no dispensing power where public interests or vested rights are involved—a prohibition crystallised in the Bill of Rights, 1684—nor can the C. violate the common law. With such limitations as these it becomes clear that the maxim has lost its original force, and serves rather to demonstrate the transfer of legal liability to ministers rather than the moral perfection of the king's judgment. But the personal immunity of the sovereign from liability finds expression in the fact that no subject can sue the king in his own courts, but must proceed by way of petition of right presented through the Home Secretary, and referred by the latter to the Attorney-General. An equally important attribute of the sovereign is his traditional perpetuity expressed in the maxim that the king never dies. The C., indeed, is a corporation (*q.v.*) sole with perpetual succession. The common law terminated all appointments held 'during pleasure' on the demise of the C., but the statute of 1 Ed. VII. c. 5, by providing that such offices shall not be affected by a demise, brought the practice into accord with the maxim. Other prerogatives concerning the royal authority *per se* are that lapse of time cannot bar the right of the C. to sue or prosecute; the subordination of the right of the subject when it conflicts with that of the king; the immunity of the king from any statutory obligation unless bound by express language or by necessary implication; and the privileges flowing from the theory that the king is never a minor. But there are numerous limitations on these prerogatives also, *e.g.* the right of the C. to claim real property as against the adverse possession of the subject is barred after fifty years; succession duty can-

not be claimed by the C. after twelve years from the date of the death giving rise to the succession, or where the Inland Revenue authorities have 'slept on the C. rights'; and indictments for treason, other than cases of attempted assassination of the king, cannot be preferred after three years from the committal of the crime. Again, royal minorities are always provided for by statute, and it is generally conceded that the king is bound, whether named expressly or by necessary implication or not, by, *inter alia*, statutes for the preservation of public rights, statutes for the public good, or for the suppression of public wrongs. Other prerogative powers include the right to receive and send ambassadors from and to foreign countries; the power to make treaties, leagues, and alliances with foreign nations; the power of issuing letters of marque and reprisal where not abrogated by treaty; the power of declaring war and making peace; and the power of granting safe conducts to alien enemies. But there is considerable doubt whether the C. can cede land to a foreign state during time of peace, or interfere with the position of the subject without parliament's sanction, and the House of Commons can stop supplies for the payment of a war declared by the C. The prerogative of the C. to assent to and dissent from Bills sent up for the royal assent is now reduced to a shadowy veto which has never been exercised since the reign of Anne. As the fountain of justice the king can create common law courts for the empire beyond the seas and pardon offenders (*see also* CRIMINAL LAW), as *parens patrie* he has the nominal custody of all infants and lunatics, as the arbiter of commerce can erect markets and coin money, and as the fountain of honour confer titles of nobility. The royal prerogative touching revenue matters confers on the C. the ownership of waifs, strays, treasure trové, wrecks, and the personal estate of intestates dying without next of kin, and enables the C. to levy customs, excise, stamp and death duties, and income tax. As the orthodox head of the Established Church, the C. appoints, on the recommendation of the Prime Minister, archbishops, bishops, and other dignitaries of the church, and entertains appeals from ecclesiastical courts through the Judicial Committee of the Privy Council. (For the Councils of the C., *see* CABINET.)

Crown, in architecture, a term applied either to crown tower or to the top portion of a cornice, or again to the spire formed by two converg-

ing buttresses as in St. Nicholas' Abbey, Newcastle.

Crown Agents for Colonies. These are home government officials whose functions relate to the commercial interests of the Crown Colonies (*q.v.*). Their duties are of a semi-administrative character, and appertain to such matters as the regulation of ports and docks, and shipping contracts. There are at present (1931) four C. A., assisted by a secretary, and a large staff comprising consulting engineers, naval architects, analysts, assayers, and accountants. Among the colonies for which they act as agents are Bahamas, Barbadoes, British Guiana, British Honduras, Ceylon, Gambia, Gibraltar, Gold Coast, Hong Kong, Jamaica, Malay States, Malta, Newfoundland, Northern Nigeria, Sierra Leone, Somaliland, Straits Settlement, Trinidad, Wei-hai-wei, and the Windward Islands. They act as agents also for the West Africa Frontier Force, the King's African Rifles, the Uganda Railway, the government of Zanzibar, and the Tanjong Pagar Dock Board. C. A. are to be distinguished from the agents-general of the self-governing colonies, whose duties are also of a commercial nature, in that these latter are truly colonial representatives. The offices of the C. A. are at Whitehall Gardens, S.W.1.

Crown Cases Reserved, Court for. Before the institution in 1907 of the Court of Criminal Appeal the C. for C. C. R., consisting of the judges of the High Court, or five of them at least, of whom the Lord Chief Justice had to be one, was the tribunal to which was reserved any question of law that might have arisen in a criminal trial, whether at the Central Criminal Court (*q.v.*), the Assizes, or quarter sessions. Unlike the new Court of Criminal Appeal which has replaced the C. for C. C. R. the latter court could not hear appeals on questions of fact, or mixed law and fact.

Crown Colonies, those dependencies of the British empire that remain under the direct legislative control of the crown. Such colonies do not enjoy representative or responsible government, the crown either (a) appointing a governor to exercise both legislative and executive functions alone, as *e.g.* in Gibraltar and N. Nigeria, or (b) delegating certain functions to legislative and executive councils which may be either (1) wholly nominated, either by the governor himself, or the crown, or (2) partly nominated and partly elected with an official majority of varying proportions. Jamaica, *e.g.*, possesses a legislative council composed of the

governor as president, five *ex officio*, ten nominated and fourteen elected members. In most cases the crown not only retains the right of veto, but the power to legislate directly by Order in Council. See COLONIAL LAW.

Crown Debts, those debts which are due to the crown, *e.g.* fines, penalties, and which are contradistinguished from debts due to the subject principally by reason of the priority they enjoy in the administration of the estate of a deceased person who has died insolvent. The old common law allowed the crown (*q.v.*) to recover C. D. summarily by a writ of *extent* against the debtor's land and goods, and to follow that property into the hands of whomsoever it went. Apparently the crown still has this power, but it cannot take copyholds in execution. The crown's lien on the debtor's property as against a *bond fide* purchaser for value of the debtor's property only extends to specialty debts (*i.e.* created by deed), and debts of record (judgment debts, recognisances, and others, *see* DEBT); it does not extend to a simple contract debt. Rates and taxes, so far as they can be said to be crown debts, are preferential debts in the administration of the estate of a bankrupt, but otherwise C. D. have no priority over other debts when an estate is administered in bankruptcy. In the administration of the estate of a deceased person, debts due to the crown by record or under a bond or covenant are paid first, where the estate is solvent, but simple contract debts due to the crown merely enjoy priority over all other kinds of simple contract debts. Where the estate is insolvent C. D. enjoy a like priority where the estate is administered by the legal personal representative or by the Chancery Division; but where it is administered by the Court of Bankruptcy, C. D. are, it seems, payable *pari passu* with other debts due under judgments, specialties, and simple contract. In winding-up proceedings of a company, C. D. are allowed. C. D. stand in the same position as in the bankruptcy of an individual.

Crown Lands, lands enjoyed in right of the crown, the profits from which, dealt with by the Commissioners of Woods and Forests and the Ministry of Agriculture, form part of the ordinary revenue of the crown, or revenue which the crown has had from time immemorial. The principal C. L. are the demesnelands, which were formerly very extensive, comprising various manors, honours, and lordships, acquired either at the

Conquest on the original disposition of the feudal estates, or subsequently by forfeiture, escheat, or otherwise. At the present day they comprise no great extent of property, most of them having been granted away to private subjects. Other C. L. are lands formed by alluvial deposit, lands left bare by the sea, and royal mines. The crown title to foreshore or land between high and low water-mark, and lands covered by inlets of the sea or navigable rivers, is limited by the public rights of navigation and fishing, and rights incidental thereto. C. L. are exempt from taxation in the absence of express or implied words to the contrary in the Acts imposing the different burdens. The powers and duties formerly exercised by the Commissioners of Woods with regard to royal parks and gardens were transferred by the Crown Lands Act, 1851, as amended by the London Parks and Works Act, 1887, to the Commissioner of Works.

Crown Office, a department of the central office of the Supreme Court of Judicature. Its official head is the Clerk of the Crown in the King's Bench (*q.v.*), now generally entitled the King's Coroner and Attorney and Master of the Crown Office. The work of this office relates to the administrative business on the crown side of the King's Bench Division, and also of the divisional courts of that division. It has no concern with proceedings on the revenue side of the court, nor in regard to parliamentary and municipal elections petition, or bankruptcy matters. The duties of the King's Coroner, which are very numerous, are *inter alia* to issue informations in the nature of quo-warranto for misdemeanours in agreement to the order of the court; to attend at the sittings of the divisional courts, so as to inform the judges on questions of practice and procedure, and take minutes of the proceedings; to administer the oath of allegiance to judges or magistrates on their appointment; and to keep in safe custody the records of the C. O. pending removal to the Record Office (*see* CUSTOS ROTULORUM). The judicial business of the crown side of the King's Bench is transacted either in court or before the judges or the master of the C. O. in chambers. The ministerial business as conducted in the C. O. includes a great number of matters, including, especially, the issuing of writs of *habeas corpus*, prohibitive attachment, *mandatum certiorari*, and writs of *subpoena*.

Crown Point, a tn. in Essex co., in New York, U.S.A., and 36 m. distant from Burlington. It is situated on Lake Champlain, so-called after the

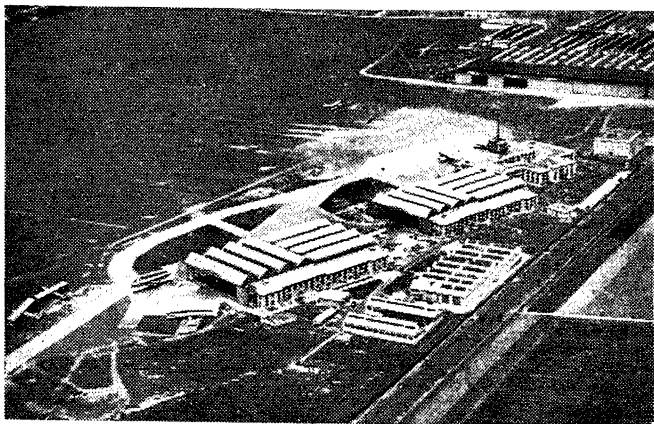
French coloniser, Champlain, and the remains of a British fort captured by the Americans in 1775. Iron and ore deposits in the neighbourhood.

Crown Solicitor, now called **Solicitor to the Treasury**. In state prosecutions in England the solicitor to the Treasury acts as a solicitor for the crown in preparing the prosecution. In Scotland there is a crown prosecutor in every county, who prepares every criminal prosecution. Similarly in the Australian States, there is a C. S. who prosecutes for the State.

Crowne, John (c. 1640-1703), an English dramatist of seventeenth century, *b.* in Nova Scotia. He began a literary career in England with his

sionary bishop of Africa, *b.* in Yoruba and sold as a slave in 1821. Was rescued with his comrades in the following year, and sent to Sierra Leone. The Church Missionary Society took an interest in him; he became a convert to Christianity and came over to England to the Church Missionary College at Islington. He was ordained by Bishop Blomfield, and on returning to his own country he translated the Bible and Prayer Book into Yoruba and other dialects. Was created bishop of the Niger territories in 1864, and died in 1891, after a life of strenuous labour and great piety.

Croydon (Doomsday 'Croindene';



[Imperial Airways, Ltd.]

CROYDON AIR-PORT

romance *Pandion and Amphigenia*, 1665, one of the few English heroic romances after the manner of Scudéry. Though of no very striking talent as a dramatist, he found favour at Charles II.'s court, and his plays were successful, some being acted in the eighteenth century. Dryden considered C. his rival. Among his plays are: *The Country Wit*, 1675; *The Destruction of Jerusalem* (two parts, produced in 1677); *Thyestes*, 1681; *City Politiques* (performed about 1683); *Sir Courtly Nice, or It Cannot Be*, 1685; *The Married Beau*, 1694; *Caligula*, 1698. See collected *Dramatic Works*, 1873 (Edinburgh); *Cibber's Lives of the Poets*.

Crowquill, Alfred, see FORRESTER, A. H.

Crowther, Samuel Adjai, a mis-

formerly Craydene, chalk hill), a parl., municipal, and co. bor. of Surrey, England, 10 m. from London, in diocese of Canterbury. C. sends two members to parliament. It owes its recent growth and popularity to general trade, attractive residential quarters and proximity to London. The archiepiscopal palace, now used by the Kilburn Sisters as a girls' school, was the residence of the primates from 1218-1757. The parish church dates back originally to about A.D. 962, was rebuilt probably by Archbishop Courtenay (*d.* 1396), and again after the fire of 1867. It contains the tombs of some of the archbishops of Canterbury. The Whitgift Hospital was founded in Elizabeth's reign. Archbishop Whitgift's endowment also endows the grammar

and middle schools. Others were endowed by Archbishop Tenison, 1714. Addington Park in the late eighteenth century replaced the palace (said to have been founded by Lanfranc) as the summer residence of the Archbishop of Canterbury. C. is supposed to be on the site of the ancient Noviomagus, and various remains of antiquity have been discovered near. There is a fine town hall, a literary and scientific institute, a theatre, public libraries, and barracks. There are breweries, boot and shoe factories, and a clock factory. The ecclesiastical parish of Addiscombe is a suburb. The par. of C. is 36 m. in circumference. The air-port of London here covers 400 acs., and cost £267,000. The world's largest carillon of 72 bells for the Riverside church, New York, was cast at the large clock and church bell factory. Extensions of the C. General Hospital costing £80,000 were opened in 1927. William the Conqueror gave the manor to Archbishop Lanfranc. Queen Elizabeth was entertained here in 1573 and 1600. There is a weekly cattle market and annual fairs for cattle, horses and sheep. The pop. in 1921 was 190,684.

Croydon, formerly a suburb of Sydney, New South Wales, now included in Ashfield (pop. 40,460) and Burwood (pop. 19,000).

Grozet Islands, a group of volcanic islands situated in the S. Indian Ocean at almost equal distances from each other between the Cape of Good Hope and Kerguelen Island. The names of the principal islands are Possession, East, and Penguin.

Crozier, Francis Rawdon Moira (c. 1795–1848), a naval officer, *b.* in Ireland. He made three voyages with Captain Parry to the Arctic Circle in 1821–27, went to the Antarctic Ocean with Captain Ross in the *Terror* in 1839–43, and sailed as second officer in Franklin's last expedition in 1845 to discover the Northwest Passage, dying in the Polar regions. The party was not heard of till Captain McClintock found a record (signed, April 1848, by Captain C.) on King William's Island in 1859, stating that the explorers were about to start for Great Fish R. under C.'s command. See McClintock, *Fate of Sir J. Franklin*.

Crozier, John Beattie, an English historian and philosophical writer, *b.* of Scottish parents in Ontario. Among his works are: *The Religion of the Future*, 1880; *Civilisation and Progress*, 1885, translated into Japanese, 1903. A civil-list pension was granted him in 1894, and doubled later to enable him to carry out his studies. Other publications are: *Lord Randolph Churchill: a Study*

of English Democracy, 1887; *History of Intellectual Development on the Lines of Modern Evolution*, 1897–1901; *My Inner Life*, 1898; *The Wheel of Wealth*, 1906; *Sociology applied to Practical Politics*, 1911. *Last Words on Great Issues*, 1917.

Crozier, William, American general of artillery and inventor, *b.* 1865, at Carrollton, O.; son of Robt. C., Chief Justice of Kansas. Graduated from U.S. Military Academy, 1876. Served in Powder R. campaign against the Sioux, 1876–77; against the Bannocks, 1878. Capt., 1890. Major Inspector General of Volunteers, 1898. Delegate to International Peace Conference at The Hague, 1899. Staff-officer in field, Philippine insurrection, 1900; Chief Ordnance Officer, Peking Relief Expedition, 1900. President Army War Council, 1912–13. Brig.-General and Chief of Ordnance, U.S.A., 1917. Memb. War Council, 1917–18; in France and Italy, 1918. Major-General, 1918; commanded N.E. dept., U.S.A., July–Dec. 1918; then retired. With General Buffington invented disappearing gun carriage, invented a wire gun. Wrote text-book *Notes on Construction of Ordnance*.

Crozon, a seaport of France, in Finistère, on Douarnenez Bay, 10 m. from Brest, with sardine fisheries. Pop. 7750.

Crucian Carp, or *Carassius vulgaris*, a fresh-water fish of Europe and Asia, closely allied to the goldfish. It is a member of the Cyprinidae, or carp family, and differs from the carp chiefly in having no barbel. It sometimes bears the name of Prussian carp.

Cruciferae, a very extensive natural order of Dicotyledons, containing between one and two thousand herbs or shrubs dispersed over the milder parts of the world. A large proportion consists of inconspicuous and useless weeds, but many are cultivated either for their beauty or for their useful properties. Honey is secreted in nectaries at the base of the outer stamens, and self-fertilisation is of regular occurrence. The order comprehends such useful plants as the mustard, cress, turnip, cabbage, radish, scurvy-grass, and horse-radish. Of the genera *Brassica*, *Cheiranthus*, and *Nasturtium* are among the most important.

Crucifix (Lat. *cruci fixus*, fastened to the cross), literally 'the Crucified One,' a cross with the effigy of Christ fastened to it. The C. began to replace the plain cross in churches in the reign of Constantine (d. 337 A.D.). The Greek Church did not acknowledge them, and they were not commonly used in the East till the close of the eighth century. They were

general in the Latin Church in the Carolingian period. They form a prominent feature in Roman Catholic churches. The earliest representations presented Christ as alive and clothed, with open eyes, the figure being pierced by four nails. The symbolic sacrificial lamb often figured on the cross, with a medallion bust of Christ, as in the Vatican cross. Later Christ appears as dead, naked except for a loin-cloth, fastened by three nails. In Catholic churches the principal C. stands in the centre of the high-altar. They are generally of gold or silver, but are sometimes made of wood, or stone, and smaller ones of ivory. Many great artists and sculptors have carved Cs. Sometimes a pictorial and not a plastic representation appeared on the cross. See Carus, 'The Crucifix,' in *The Open Court*, xiii. (1899); Ashton and Baring Gould, *Legendary History of the Cross*, 1887; Stockbauer, *Kunstgeschichte des Kreuzes*, 1820.

Cruden, a parish and coast-town of Aberdeenshire, Scotland, 8 m. from Peterhead. A battle between Malcolm II. of Scotland and Canute (later King of England) is supposed to have been fought here. Pop. 2959.

Cruden, Alexander (1701-70), an English scholar, author of a famous Bible Concordance. He was educated at Marischal College, Aberdeen, and then for a time confined for symptoms of insanity, finally coming to London (c. 1722) as tutor and bookseller. He became bookseller to the queen, 1735. His *Complete Concordance of the Holy Scriptures* appeared in 1737. Later he acted as a corrector for the press, and called himself 'Alexander the Corrector' of national morals. See A. Chalmers' edition, 1812 (10th ed. 1824).

Cruelty to Animals, see ANIMALS, CRUELTY TO.

Cruelty to Children, National Society for the Prevention of. The earliest society for the purpose of preventing cruelty to children was formed in New York, U.S.A., 1875, and Liverpool and London followed this example, 1883-84. The present National Society was founded (1889) by the Rev. Benjamin Waugh, and incorporated in 1895. It aims at preventing public and private wrongs of children and the corruption of their morals and tries to promote better legislation and to enforce the existing law. Cases of cruelty and neglect are carefully examined, and in about twenty-three years the welfare of nearly 1,000,000 children has been cared for by the society's various methods. The children's section of the society is the League of Mercy, formed to interest happy children in

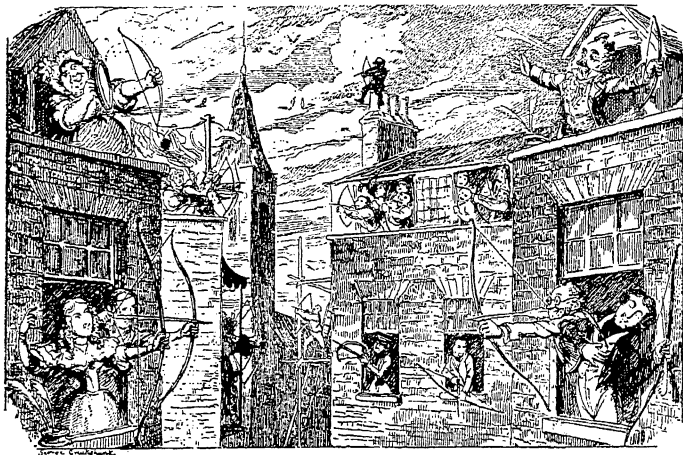
the lives and welfare of the less fortunate. A Prevention of Cruelty to Children Act was passed, 1894, which imposed severe penalties on all who inflicted needless suffering on children (three months' imprisonment to three years' penal servitude), and provided for government inspection of all places where children are trained. But this and most of the other Acts relating to children were consolidated in the Children Act, 1908 (q.v.). The society's chief organ is the *Child's Guardian*.

Cruikshank, George (1792-1878), a caricaturist and artist, was the son of Isaac C. (c. 1756-c. 1811), and the younger brother of Robert C. (1789-1856), both of whom also achieved success as caricaturists. George C. had no training in art, though he once made an abortive attempt to enter the Academy schools, but he was a born artist and began to sketch as a child. Some of his drawings at the age of seven have been exhibited. In 1811 he began to contribute to the scurrilous periodical *The Scourge*, and within a few years he was on the staff of other papers, and had begun to illustrate books. He issued many cartoons after the style of Gillray, and the subject of a considerable number issued in 1814 and 1815 was, naturally enough, Napoleon. In the latter year he became associated with William Hone, the author and bookseller, and his illustrations to Hone's lampoons on George IV. and the managers of the queen's trial, such as 'The Queen's Matrimonial Ladder,' 'Non mi ricordo,' and 'The Man in the Moon,' attracted much attention. These squibs against George IV. were re-issued as *Facetiae and Miscellanies*, 1827. In 1818 he issued the first of his pictorial sermons, the famous 'Bank Restriction Note,' through which he claimed with some reason to have caused the death penalty for forgery to be abolished. Subsequently he issued a series of eight plates, 'The Bottle' (1847), and an oil-painting, 'The Worship of Bacchus' (1862), in which he preached temperance and showed the downward path of the drunkard. Of these, perhaps, he was more proud than of any others of his work. Other temperance prints were: 'The Gin Bottle,' 'The Gin Trap,' 'The Gin Juggernaut,' 'The Drunkard's Children,' and 'Sunday in London.' His other oil-paintings include: 'Titania and Bottom,' 'Cinderella' (1854, now in S. Kensington Museum), 'The Fairy Ring,' 'Grimaldi Shaving,' and 'Disturbing the Congregation.' In later years he devoted himself largely to the illustration of books, and in this direction he was particularly success-

ful with Dickens (*Oliver Twist*), Ainsworth (*The Tower of London*, and six other books), Thackeray (*The Legend of the Rhine*), Fielding, Smollett, and Sterne. His industry was prodigious and his output enormous. He contributed largely to the *Comic Almanac*, 1835-53, the forerunner of *Punch*. Among the popular books of the period illustrated by C. are: Grimm's *German Popular Stories*, 1823-26 (containing possibly his best work), and *Fairy Tales*, 1827; Dickens's *Sketches by Boz*; Scott's *Waverley Novels*; *Memoirs of Grimaldi*; *Don Quixote*; *Points of Humour* (2 vols.), 1823-24; *Bentley's Miscellany* (containing his

Stephens, *A Memoir of G. Cruikshank*, 1891; Bates's *Life*, 1878; Jerrold's *Life*, 1883; Truman's *Cruikshank Dictionary*; Reid, *Descriptive Catalogue of the Engraved Works of G. Cruikshank*, 1873; Thackeray in *Westminster Review*, June 1840.

Cruisers (*Dutch kruisen*, to cross), war vessels primarily built for speed. They existed as early as the sixteenth century and were used for scouting, convoying, and carrying despatches. At first they were pinnaces of small dimensions, but the operations against the pirates in the seventeenth century caused a bigger class of vessel to be built, provided



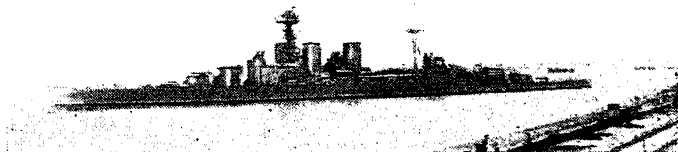
CRUIKSHANK'S CONCEPTION OF ST. VALENTINE'S DAY
(*Comic Almanac*)

illustrations of Ainsworth's *Jack Sheppard*). *The Table Book* and *The Omnibus* were magazines of his own. His last known work, a frontispiece to Mrs. Blewitt's *The Rose and the Lily*, was done when he was eighty-three. Three years later he died, and was buried at Kensal Green, but shortly after his remains were removed and interred at St. Paul's. In caricature (*q.v.*) he carried on the work of Rowlandson and Gillray, but without their ferocity and coarseness; in humorous drawing he stood alone, and as an illustrator he has not been excelled. He was at his best, in this last branch of art, in depicting the grotesque and terrible. See Ruskin, *Modern Painters*; Forster's *Life of Dickens*, ii. p. 18;

with oars as well as sails and carrying heavier armament. By the middle of the eighteenth century they had developed into the frigate of 700 tons carrying 28 or 32 guns, and were improved during the naval wars with France until they reached some 1500 tons. The introduction of iron ship-building greatly affected the C., as it enabled speed to be developed parallel with strength of armament. The development was, however, slow. At first there was the corvette, with small steaming capacity but high sailing qualities. This was followed by unprotected Cs. in which the steaming capacity was greatly improved. Upon these came the protected C. to which class belonged the *Edgar*, launched in 1893, having a dis-

placement of 7350 tons and a speed of 19 knots. This was followed in 1895 by the *Powerful* type (displacement 11,200 tons, speed 22 knots). Later on came the class of armoured Cs. of the *Cressy* type, launched in 1901, which was followed by the *Monmouth* type in 1903; the *Deronshire* type in 1905, and the *Minotaur* in 1908. The *Minotaur* had a displacement of 11,600 tons, a speed of 23 knots, and carried 4 guns of 9.2 in., and 10 of 7.5 in. The armoured C. was greatly favoured at the beginning of the present century to the prejudice of the battleship, but a reversal of opinion subsequently took place, and later naval opinion favoured the building of bigger battleships of the Dreadnought and super-Dreadnought types. This movement also led to the introduction of a new class known as the

however, practically sealed the doom of this type of vessel. Light cruisers were also in great demand during the Great War, and are much favoured by Great Britain for police duty on Empire trade routes; but the U.S.A. prefer the heavier types, chiefly owing to the difficulties connected with the general maintenance of Light Cruisers. The Washington Treaty of 1921 had a very important influence on the design of all types of war-vessels and, in the case of cruisers, a limit of 10,000 tons displacement with guns up to a maximum of 8-in. was fixed. The British Admiralty have built the *London*, *Kent*, and *Dorsetshire* classes since that date; and the U.S.A. have launched the *Chicago*, *Pensacola* and *Augusta*. In the U.S.A. five cruisers were ordered in 1929; their names are *New Orleans*, *Portland*, *Astoria*, *Indianapolis* and *Minneapolis*.



H.M.S. HOOD

[The Times

battle C., whose armament is only slightly inferior to that of the strongest battleships. To this class belong ships of the type of the *Invincible*, launched in 1909 (displacement 17,250 tons, speed 27 knots), and the *Queen Mary* (displacement 27,500 tons, speed 28 knots), with 8 guns of 13.5 in. calibre. In the Great War there was always need for a swift vessel carrying heavy armament, such craft being highly suitable for attacking warships of substantial magnitude, while at the same time being able to make wide enveloping movements for the purpose of operating in rear of a hostile fleet or threatening its retreat. These are essentially functions of the battle-cruiser, and an excellent opportunity for the exercise of the battle-cruiser's powers was afforded in the Battle of the Falkland Islands (*q.v.*), where two British battle-cruisers destroyed Admiral Von Spee's Ger. squadron. At the Battle of Jutland, however, British and Ger. battle-cruisers fought each other, and their powers of speed were not used in any exceptional manner. The terms of the Washington Treaty (*q.v.*) of 1921,

Weight is being saved by welding instead of riveting. The elevation of the guns is to be increased from 22 to 40 degrees. See also SHIPS AND SHIPBUILDING and NAVY.

Crusades, or Wars of the Cross (Fr. *croisade*). The objects of these religious wars carried on by European nations against Mohammedanism for several centuries were originally, (1) to ensure the safety of pilgrims visiting the Holy Sepulchre, and (2) to set up Christian rule in Palestine. Later on, we find the attack directed against Egypt and even Constantinople, and in the fourteenth century the conquests of the Ottoman Turks turned crusading into a defensive movement. It is usual to speak of the C. as six or seven in number, but actually the movement was continuous for over two centuries, hardly a decade passing without one or more expeditions. Only the most successful or the most disastrous of these, however, have taken prominent place in history. In the eleventh century, affairs stood thus. The mild rule of the early Saracens had for centuries allowed a Christian protectorate,

Sardinia, the rest reached Alexandria, where the children were seized and sold as slaves, few of them ever regaining their liberty. At about the same time another boy named Nicholas, in Germany, led a similar expedition into Italy, but this did not end so miserably. Some died by the way, but many returned home, and others found service in Italian towns and villages. The fact of parents allowing their children to take part in such enterprises shows, perhaps, more plainly than anything else, the ignorant credulity and fanaticism of those days. A crusade under Andrew of Hungary and others (1217-21) against the Mohammedan power in Egypt was a failure, but that of Frederick II. undertaken in 1228 while he was under the ban of the pope, was successful. By diplomacy, not fighting, he regained Jerusalem and the S. of Palestine, which remained in Christian hands until 1244, when it was finally lost. The seventh C., led by Louis IX. of France (St. Louis), in 1248, was like that of 1217 directed against Egypt, and proved even more disastrous. Louis, with the greater part of his army, was captured, and had to pay 800,000 pieces of gold as a ransom. Even after this, in 1270, he headed another C., but died at Tunis. Among those who joined this expedition was Prince Edward of England (afterwards Edward I.), who a few months later led his own followers to Acre, but achieved no results. He was the last royal crusader, except Peter of Cyprus, who in 1365-67 carried on a holy war in Egypt and Syria, but was assassinated. Though later on several popes preached united war against the infidels, nothing came of it. Even when Constantinople was captured by Mahommed II. in 1453 Pius II. failed in trying to raise a C. for its recovery. The Templars were suppressed, but the Hospitalers, at Rhodes and afterwards Malta, long continued to be a bulwark against Turkish advance in the Mediterranean. Though the C. failed in effecting the objects for which they were intended, they indirectly worked great and unforeseen benefits for Christendom. While princely adventurers and their turbulent followers left Europe to seek for fame and conquest in the East, astute monarchs were establishing the reign of law in the West. The Church, by preaching a theocratic movement which was unsuccessful, injured its own prestige, and, what is more, by the increased knowledge and breadth of view introduced by intercourse with another and in some respects a higher civilisation, a perceptible advance was made in Europe

towards that freedom of thought which led in after years to the revolt against papal authority. The Templars themselves were accused of latitudinarianism and heresy. Trade was greatly stimulated; the merchants and mariners of the Mediterranean, especially of Venice and Genoa, found the demand for the shipping increased manifold, for the transport of armies and the bringing of new and rare commodities from the East. European craftsmen and soldiers learned valuable lessons from Saracen skill in art and in war. Sugar, cotton, and many other articles now of everyday use, first became known in Europe through the C. During the twelfth and thirteenth centuries rumours of a mysterious Christian potentate in Central Asia, Prester John, led to the sending of various missions, first in search of him as a possible ally, and afterwards to attempt the conversion of the Mongols. Prester John was not found, nor the Mongols converted, but the missionary journeys of Carpini in 1245, and Rubruquis in 1252, and the trading journeys of Nicolo Polo and his son Marco, gave European geographers their first real knowledge of Central Asia. Up to that time the wildest legends, such as those of Sir John Mandeville, had passed as truth. The bibliography of the C., both as to contemporary records and modern compilations, is very extensive. English readers may consult among others, Gibbon's *Decline and Fall of the Roman Empire*; Hallam's *Middle Ages*; Lane-Poole's *Saladin and Mohammedan Dynasties*, and Stevenson's *The Crusaders in the East*.

Crusca, Accademia della, one of the most famous of the many Italian academies, founded at Florence, 1582, and still in existence. 'Crusca' means the bran which remains after the bolting of flour. The Accademia della Crusca or Furfuratorum aimed at purifying and cultivating Italian language and literature. Its arms were a bolter with the motto 'Il più bel fior ne coglie.' Its vocabulary of the Italian tongue (1st edition, 1612) is still a model for works of the kind. The French Academy was modelled on this one. English residents in Florence who published inferior sentimental poetry and prose about 1785 were nicknamed the 'Della Cruscan School.' In England many of their productions appeared in the *World* and the *Oracle*. Popular for a time, their work received its death-blow from the criticisms of Gifford, in his *Baviad* and *Maviad*, 1851. The Della Cruscans included Topham, Mrs. Piozzi, and James Boswell.

Crusius, Otto (1857–1918), a German classical philologist, *b.* at Hanover. He studied in Leipzig, becoming professor at Tübingen University in 1886, at Heidelberg in 1898, and Munich in 1903. In 1888 he became editor of the *Philologus*. He produced *Analecta ad Paroemiographos Græcos*, 1883; an edition of *Plutarchus de proverbiiis Alexandrinorum*, 1889–94; *Zur handschriftlichen Überlieferung der Paroemiographen*, 1891. Other works are: *Beiträge zur griechischen Mythologie und Religionsgeschichte*, 1886; *Untersuchungen zu Herondas*, 1892; *Die Delphischen Hymnen*, 1894; a fourth edition of the *Anthologia Lyrica* of Bergk and Hiller; and a biography of Erwin Rohde, 1902.

Crustacea (Lat. *crusta*, crust), a large and greatly varied class of animals, classed with insects and myriapods in the phylum Arthropoda. The astonishing variety in common characteristics will be recognised when it is seen that the group includes crabs, crayfishes, lobsters, barnacles, acorn-shells, water-fleas, wood-lice, pill-bugs, sand-fleas, and shrimps, and is composed of both terrestrial and aquatic animals, the latter being either marine or fresh-water species. The features which are shared by all are few, and in degraded forms some of the chief characteristics are lost. Nearly all breathe by means of gills, the head has five pairs of appendages, the thorax bears numerous appendages which are usually biramous, and the segmented abdomen also frequently has limbs. Reproduction is sexual, the sexes being nearly always distinct, and all crustaceans are oviparous; the female carries her eggs with her under the abdomen or thorax until they hatch, when a series of extraordinary metamorphoses generally takes place. The distribution of C. is very wide. They frequent the sea at all depths, occur in fresh-water lakes and rivers, and a few dwell under the bark of trees; the extinct species date from the Cambrian period. They function as scavengers of the sea, are used as bait for fishes, and by some people crabs, lobsters, prawns, shrimps, and crayfishes are regarded as food. About 6000 species, fossil and recent, have been classified, the grouping being based upon the character and number of the segments and appendages. The Trilobita were formerly classed with the Entomostraca, but are now generally considered as distinct arthropods, and the two sub-classes are known as the Entomostraca and Malacostraca. The Entomostraca contains four orders of small aquatic animals: (1) Phyllopora, *e.g.* the

brine-shrimps; (2) Ostracoda, *e.g.* the genus *Cypris*; (3) Copepoda, *e.g.* the water-flea and fish-lice; (4) Cirripedia, *e.g.* the barnacle-goose and acorn-shell. The Malacostraca contains several orders of which the chief are the Decapoda, *e.g.* the crab and lobster; Amphipoda, *e.g.* the sand-hopper; Isopoda, *e.g.* the wood-lice; Stomatopoda, *e.g.* *Squilla*; Cumacea, *e.g.* *Cuma*.

Crutched, or **Trinity, Friars**, an order of friars who came to England from the Continent in 1244, called *Fratres cruciferi*, or *croisiers*, from the staff, bearing a cross on the top, which they carried in their hands. This name was in England corrupted into 'Crouched', or 'Crutched' Friars, and is still preserved in Crutchedfriars, Mark Lane, E.C. They belonged to the Trinitarians who followed the Augustinian rule. Later they had a scarlet cross on their habits changed to a blue cross in 1460 by Pope Pius II. They had monasteries in London (between Jewry Street, Aldgate, and Mark Lane), Oxford, and Reigate, and also in Scotland and Ireland at the Reformation. They were suppressed in the British Isles in 1656.

Crux, *see* SOUTHERN CROSS.

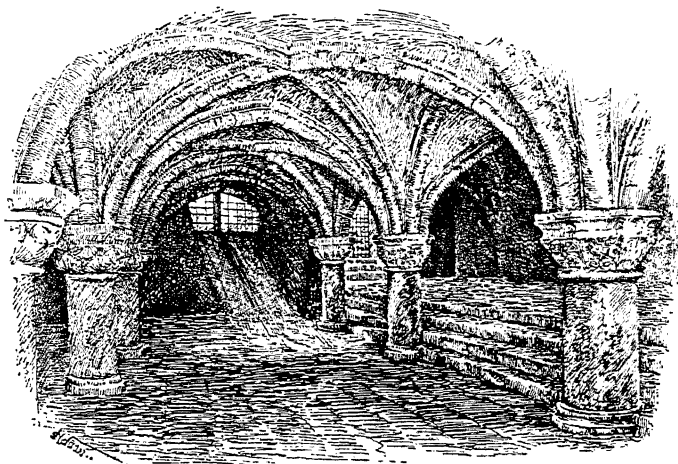
Crux, Juan de la (1542–91), a Spanish mystic and poet, *b.* in Old Castile. His real family name was Juan de Yepis y Alvarez, that of 'de la Cruz' being assumed on his becoming a Carmelite friar in 1563. He aided Saint Theresa in her reformation of the Carmelite Order. He wrote both in prose and in verse, marked by fervour of style and harmonious beauty of language. His works include *Noche obscure del Alma*, and have frequently been translated into other tongues. His *Collected Works* were first published in 1580, and translated into Fr. by Maillard in 1694. *Obras Espirituales* (Seville, 1703, 12th ed.) were reprinted in 1849, forming vol. 27 of the *Biblioteca de Autores Españoles*. De la C. was canonised in 1726. *See* David Lewis, *Complete Works of St. John of the Cross*, 1889; and Life, 1897; Dosithee de Saint-Alexis, *Vie de St. Jean de la Croix*; Rousselot, *Les Mystiques Espagnoles*, 1867.

Crwth, or **Crowd**, an obsolete lyre-shaped musical instrument with six strings, four being played with a bow and two plucked by the thumb. It is very ancient in origin, probably the oldest stringed instrument played with the bow, mentioned about 609 A.D. by Venantius Fortunatus, Bishop of Poitiers, in some elegiacs as 'chrotta.' The 'C. trithant' had only three strings. Bow instruments probably came originally from India,

but the C. was apparently the first of the viol family in Europe. It was an especial favourite in Wales, and was heard there as late as 1801. In England, Ireland, and Brittany it was also much played. The sound-holes were circular, the bridge slanted to the right, the left foot passing through the sound-hole and resting on the back of the instrument, thus doing the work of a sound-post. The C. is frequently mentioned in Watts-Dunton's romance *Aylwin*, 1898. See *Grove's Dictionary of Music*, i.

Cruyshautem, a com. and vil. of Belgium, E. Flanders prov., Aude-

terranean, vaulted structure under a church (especially directly beneath the choir or chancel), used for sepulture, or (rarely) as a chapel. Anciently it was a subterranean chapel in the catacombs. Cs., when large enough for an altar and having room to worship the relics, grew out of the confessions or underground tombs designed to receive the bodies of saints, martyrs, and church dignitaries. Cs. were most usual between the ninth and thirteenth centuries, but were not common after the early Romanesque or Norman period. One of the finest examples is under St. Mungo's



THE CRYPT, YORK MINSTER

narde arron., 11 m. from Ghent. Pop. 5980.

Cryolite, a mineral with a shimmering pearly lustre, found in abundance on the W. coast of Greenland. It is composed mainly of the fluorides of aluminium and sodium ($6\text{NaF}, \text{Al}_2\text{F}_6$). It was largely employed in the production of aluminium, but its most important use is in the production of alum and soda bicarbonate.

Cryophorus, an apparatus invented by Wollaston to demonstrate the loss of heat due to evaporation. The instrument consists of a bent glass tube provided with a bulb at each end; it is prepared by introducing a small quantity of water, which is boiled until the tube and bulbs contain only water and water vapour, when the apparatus is hermetically closed.

Crypt (Gk. *κρυπτός*, hidden), a sub-

Cathedral, Glasgow. In England there are good examples under Canterbury Cathedral (1096), St. Paul's, London, and the cathedrals of Winchester, Worcester, Hereford, and Gloucester. Others are under Chartres Cathedral; Cathedral of Otranto; St. Mark's, Venice; St. Eutrope, Saintes; St. Peter's, Rome.

Crytogamia (Gk. *κρυπτός*, hidden, *γάμος*, marriage), the name given to the twenty-fourth class of the Linnean system of plants. It is used to distinguish the plants which do not produce seeds from those which do bear seeds, the latter being grouped together as *Phanerogamia*. The C. consists of three groups, the Thallophyta, e.g. seaweeds and fungi; the Bryophyta, or mosses and liverworts; the Pteridophyta, e.g. ferns and selaginellas.

¹ Cryptography (from Gk. κρυπτός, hidden, secret, and γράφειν, to write), or writing in cipher, the art of writing messages in such a way that they can be read only by those possessing the key to the cipher. Plutarch tells of a system in use among the Spartan generals, known as the *scytale*, from the staff (σκυτάλη) used to write and to decipher the messages. The writer wrapped a long strip of parchment round his staff, so that the edges touched all the way round. The message was then written along the joined edges, so that each letter was written half on one side of it and half on the other. The parchment strip was then unrolled, and sent to its destination. It could only be read by rolling it on a similar staff to that used by the sender, so that the letters again became whole. Julius Cæsar also made use of a simple cipher, by which the fourth letter of the alphabet stood for the first, the fifth for the second and so on. A cipher formed by reversing the order of the alphabet was in use among the Jews, as we learn from Jeremiah xvi. Francis Bacon, Lord Verulam, in *The Advancement of Learning* (1605), classes C. as a part of grammar, and gives three requisites for a good cipher. It must be easy to write and read; it must be difficult of detection; it must be void of suspicion, i.e. it must not appear to be a secret message at all. He himself furnished an ingenious bi-literal cipher, by which the letters of the alphabet were represented by various combinations of the letters A and B in groups of five, three A's and two B's or three B's and two A's. Before this time, however, some literature had already gathered round the art. The first writer on the subject was John Trithemius, Abbot of Sponheim. At the request of the Duke of Bavaria, he composed *Polygraphia*, 1500. The same prelate may also be the author of *Stenographia*, published some fifty years later at Lyons. During the period of the Civil Wars in England, most of the important messages from the leaders of both parties were sent in cipher. The Royalist party especially made free use of this means. King Charles I. and his queen were especially adept at the art, and a large number of their letters and papers remained untranslated until the nineteenth century. The various different methods of C. fall mostly under the following heads: (1) Writing with invisible ink which becomes visible when the paper is heated; (2) the insertion of superfluous words and letters, where it is agreed upon that words at regular intervals form the message, the rest being padding;

(3) the misplacing or rearrangement of words or letters; (4) reading vertically or diagonally; (5) the substitution of letters; (6) by stencil plates or papers which are placed over the cryptogram, the words which then appear forming the message; (7) the use of two or more letters (Bacon's system); (8) the employment of numerals instead of letters, a system often used by Charles I.; (9) by a special key containing an arbitrary code; (10) the use of specially arranged counterpart tabulations, which vary at different stages in the message. A description of Hogg's secret code will give some idea of a cipher of this latter class. It consists of two columns, one fixed and containing the letters of the alphabet, another sliding by the side of the first column and containing two; alphabets, one continuing below the other. A key word is arranged on by the correspondents, and this word is repeated again and again until the message be ended. The working may be best explained by an example. Suppose the key-word be Edna. The sliding column is then moved so that the E on its upper alphabet comes opposite the A on the fixed alphabet. Each letter on the sliding alphabet is used as a substitute for its equivalent on the fixed alphabet. With the columns in this position the first letter of the message is written down. Then the D of the sliding scale is moved opposite the fixed A and the second letter written down. Then N is moved opposite A and the third letter written. The fourth letter does not change. For the fifth letter the E scale is again used, and so on. Thus, with the key-word given above, the sentence 'Send help at once' would appear as 'Whad lhyp ew bugh.' The first work of the decipherer in cases of this kind is to see the letter which is used most frequently. In English, this will correspond to the letter e. The letters which are most frequent after e are the following: t, a, o, n, i, r, s, h, d, l, c, w, u, m, f, y, g, etc. All the single letters must be either A, O, or I. The double letters which recur most frequently are ee, oo, ff, ll, ss, and the commonest words of two letters are, roughly speaking, of, to, in, it, is, be, he, by, or, as, at, if, etc. A special study of the subject will discover a great number of symmetrical combinations of letters which occur with greater or less frequency in all languages, and which will materially aid in the work of solving cryptograms. See Thicknesse's *Treatise on the Art of Deciphering and of Writing in Cipher*, 1772; Klüber's *Kryptographik*, 1809, etc.

Cryptomeria, a genus of plants be-

longing to the order Coniferae. *C. japonica* is a large pyramidal evergreen tree which grows to a height of a hundred feet. It is a native of China and Japan.

Cryptoprocta Ferox, a species and genus of Viverridae, or civets, is the fossa of Madagascar and constitutes in itself the sub-family *Cryptoproctinae*. In appearance it resembles a large pole-cat, three feet in length, and in colour it is reddish-brown. It is active, carnivorous, and extremely ferocious.

Crystalline Rocks comprise those that have a crystalline structure, as opposed to those that are elastic. This crystalline form may be either original or may have been caused by the action of great heat and pressure. The origin, in fact, cannot be taken into account with these rocks, for some of the aqueous rocks, *e.g.* rock salt and gypsum, owe their origin to chemical precipitation from water, while others have arisen from igneous rocks, *e.g.* lava. Again, the crystalline schists (*q.v.*) belong to this group, although they present a foliated character. In this case it seems certain that the change in structure has been induced by the physical conditions. The igneous rocks are now known as *massive* crystalline, as opposed to the schistose crystalline structure.

Crystallites, stages in the formation of crystals which occur in volcanic rocks. When examined under the microscope, these rocks consist largely of a glassy base, and through this base are scattered great numbers of tiny crystals and *C. C.* may also be produced by allowing a solution of sulphur in carbon disulphide, mixed with Canada balsam, to evaporate slowly, and the development of the *C.* can then be noted on a microscopic slide.

Crystallography (Gk. *κρυσταλλος*, ice; *γράφειν*, to write), the study of the form, structure, and properties of crystals. When matter passes into the solid state from the liquid or the gaseous state, it may take an *amorphous* (shapeless), or a *crystalline* form, when there is a remarkable similarity between crystals of the same substance. The formation of crystals appears to be favoured by a gradual transition from the fluid to the solid state, as when a substance in solution is deposited by the gradual cooling or evaporation of the liquid or when the transition occurs directly from the gaseous to the solid state. The molecules then tend to arrange themselves so as to form polyhedra, and this tendency is encouraged by the presence of a crystal of the same, or of a similar, substance. Most

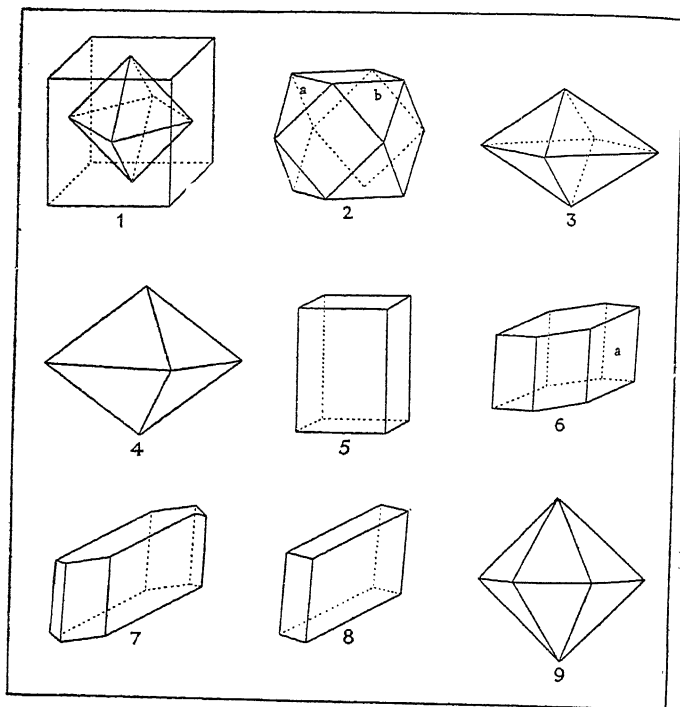
organic and inorganic substances can be obtained in a crystalline form; sugar, salt, and alum readily crystallise from solution; metals such as cast iron and zinc solidify from fusion in a crystalline form; but the most perfect examples are those resulting from the gradual cooling of the earth's crust. The science of *C.* deals mainly with minerals thus crystallised, and may, therefore, be regarded as a sub-division of the science of mineralogy. When the object of study is the form of crystals, it is known as *Morphological* or *Geometrical C.*; the structure and properties are studied under the name of *Physical C.*

There are three principles which characterise the crystalline form; they are indicated by the terms 'constancy of angles,' 'symmetry' and 'rationality.' Although there may be irregularities and imperfections of form in crystals of the same substance the angles between their faces are invariably the same. The symmetry of crystals is not necessarily one of position, but is one of direction; that is, the edges and faces may be arranged so as to give the same direction with respect to certain axes or planes without correspondence in linear dimensions. A cube is symmetrical about its central point; that is, its faces are arranged in parallel pairs about that point. It is also symmetrical about certain axes: the lines joining opposite corners (four axes); those joining the middle points of diagonally opposite edges (six axes); and those joining the middle points of opposite faces (three axes), giving a total of thirteen axes. A cube may also be divided into two symmetrical halves by certain planes: those passing through four corners (six planes), and those passing through the middle points of four edges (three planes); giving a total of nine planes. A cube therefore is symmetrical with respect to twenty-three elements altogether. Other crystalline forms display fewer types of symmetry. The principle of 'rationality' depends on certain systems of notation by which the directions of the faces are indicated. Suppose three edges formed by the intersection of three faces be taken as axes of reference. Any face can now be defined by the intercepts cut off by it on these three axes. As the direction, but not the dimensions, of the face is required, the ratio of these intercepts is sufficient for the purpose. It has been found empirically that these ratios are simple numbers, as 112, 231, etc., and they can never involve incommensurable surds as $\sqrt{2}$ or $\sqrt{5}$. The system of nota-

tion indicated is known as Weiss's, but it has been to a great extent superseded by Miller's, in which the reciprocals of Weiss's figures are used. Thus the Weissian index (231) becomes, according to Miller, $\frac{1}{2}:\frac{1}{3}:1$, or 326.

Systems.—According to the number and nature of the axes of sym-

(4) Oblique or monoclinic system, where two of the axes are at right angles and the third oblique, all the axes being of different lengths. (5) Anorthic or triclinic system, where the angles between the axes are all oblique and the axes of different lengths. (5) Hexagonal system, where



Cubic system: 1. Relation of Cube to Octahedron; 2. Cubic Octahedron. *Tetragonal System:* 3. Square Octahedron (obtuse). *Rhombic System:* 4. Rhombic Octahedron (botuse); 5. Rectangular Prism. *Monoclinic System:* 6. Prism in which two edges are truncated by the face and producing an oblique six-sided prism. *Triclinic System:* 7 and 8. Oblique Rhomboidal prisms. *Hexagonal System:* 9. Double six-sided pyramid.

metry, crystals may be divided into six groups or systems: (1) Cubic or isometric system, where the three crystallographic axes of reference are at right angles to each other and are equal in length. (2) Tetragonal or pyramidal system, where the three axes are all at right angles to each other, but only two are equal. (3) Rhombic, orthorhombic or prismatic system, where the axes are all at right angles, but are of different lengths.

there is one principal axis of symmetry and six axes of symmetry at right angles to it. Where all the planes or faces required by the complete symmetry of the system are present, the form is said to be holohedral. Sometimes only half of the full number of faces are present; the form is then said to be hemihedral, and when only a quarter are present the form is called tetartohedral.

Crystals corresponding exactly to

the types as set down in the systems are comparatively rare, imperfect or multiple development rendering it often necessary to assume the existence of faces which cannot be observed. Where a prism is terminated by pyramids, it often happens that one end only is complete, the other forming the surface of attachment to the rock. Occasionally, *hemimorphism* is met with; this is a condition in which the ends belong to different forms. Crystals are often massed together to form a group. *Parallelism* then occurs, in which two crystals are compounded so that a line joining their centres lies along a crystallographic axis or is parallel to it. Alum commonly shows this phenomenon. In *twin-grouping*, two crystals have a common face. If the crystals be regarded as penetrable, and the faces in contact are looked upon as moved parallel to themselves each through the other crystal, a form is obtained which is known as a penetration twin. There may be three or even more individuals in such a group, when their identification by form may become somewhat difficult. Many other irregularities occur, such as are commonly produced in the laboratory when a fairly regular individual is introduced into a solution to promote the deposition of the solid. Certain faces are developed at the extent of others, producing a distorted condition. When imperfections are so numerous as to disguise the crystalline structure of a mineral completely, it is said to be *massive*.

Physical Crystallography.—There are certain physical properties characteristic of the crystalline form. By *cleavage* is meant the tendency of a crystal to split along certain planes when subjected to a wedging force. These planes are always parallel to a face or a possible face of the crystal. When a crystal is broken to pieces by a crushing blow, the fragments usually are bounded by a few planes only, showing the tendency to break in particular directions. When a crystal is struck by a sharp point, percussion lines are produced which agree in number and direction with the symmetry of the face. A crystal immersed in a solvent is acted upon in a manner which shows differing degrees of resistance according to the symmetrical arrangement of the particles. Etched figures are produced which beautifully illustrate the simple form of the particular crystals. The hardness of a crystal face depends on its direction.

The optical characteristics of various crystals are often used as an aid to identification. They may be classified primarily as opaque, trans-

lucent, and transparent. Opaque crystals do not allow light through at all, translucent crystals allow light to pass without allowing definite outlines to be seen, just as oiled paper and ground glass act. Transparent crystals allow light to pass through, but the direction of the ray is bent or refracted. Crystals of the cubic system are isotropic, that is, they refract singly. Other crystals are doubly refracting, the ray being split into two. This property is best illustrated in calcite, or Iceland spar. It is found, however, that the difference in direction of the transmitted rays varies according to its direction with respect to an optic axis. When the ray travels parallel to an optic axis, it is transmitted as a single ray. Crystals which possess one such axis are called *uniaxial*; to this class belong hexagonal and tetragonal crystals. Those with two optic axes are known as *biaxial*; such are rhombic, oblique, and triclinic crystals. The colour of crystals may be due to their own inherent absorptive qualities, when they are known as *idiochromatic*; or may be due to adventitious substances, when they are called *allochromatic* crystals. The behaviour of crystals with respect to heat corresponds to their optic properties; the conductivity is greatest along the optic axes. Expansion by heat also varies in different directions, producing change of form.

Substances identical in chemical composition may crystallise in two different forms. Such substances are termed *dimorphous*; examples are: *Carbon*, crystallised in the cubic system as diamond, and in the hexagonal system as graphite; *Sulphur*, in the rhombic system when deposited from solution in carbon bisulphide, and in the oblique system when crystallised from fusion. An example of trimorphism is *Silica* crystallised in the hexagonal (tetartohedral) system as quartz, in the hexagonal (holohedral) system as tridymite, and in the rhombic system as *asmanite*. Minerals of analogous constitution often have similar crystalline forms. Such a condition is termed *isomorphism*. For example, the rhombohedral carbonates calcite, magnesite, dolomite, siderite, ankerite, calamine, etc., are similar in form, cleavage, and optical properties. In each case the mineral may be represented by $R''CO$, where R'' denotes equivalents of the analogous metals, calcium magnesium, iron, manganese, zinc, etc., or combinations of two or more of those metals.

See J. D. Dana's *Mineralogy*; H. A. Mier's *Mineralogy*; Maskelyne's *Crystallography, a Treatise on the*

Morphology of Crystals; W. J. Lewis's *Treatise on Crystallography*.

Crystallomancy (Gr. κρύσταλλος, crystal; μαντεία, prophecy, divination), a means of divination by the hypnotic condition caused by gazing fixedly into a crystal, mirror, or pool of ink. This practice has been followed in all ages as a means of foretelling the future. A beryl was most often used. The operator, having muttered certain formulas over it, handed it to a pure youth or maiden, who was then supposed to be able to reveal the future. The desired knowledge was obtained by means of written characters on the crystal, or by the appearance there of the spirits invoked. Dr. Dee was a noted adept at C., two of his 'magic mirrors' being now in the Br. Museum. See *Shorthouse, John Inglesant*, 1881; books on crystal-gazing by Melville, 1903, and Thomas, 1905.

Crystal Palace. This building, mainly of glass and iron, with wooden floors, was first erected in Hyde Park, London, for the Great Exhibition in 1851. It was designed by Sir Joseph Paxton, was 1808 ft. long, 21 acs. in area, and cost £1,540,000. It was taken down and re-erected at Sydenham, where Queen Victoria opened it in 1854. The central transept is 390 ft. by 120 ft. and 175 ft. high; the south transept is 213 ft. long, and a similar north one was burnt in 1866. Its greatest width is 384 ft. Intended as a permanent exhibition of the art and culture of all nations, it has a series of courts representing the architecture and sculpture of different civilisations, a picture gallery, museum, and school of practical engineering. From 1855 to 1901 the famous C. P. Saturday Concerts (symphony concerts) were held there under the direction of August Mann, the season being from October to April. From 1859 to 1912 the Handel Festival took place at the C. P. every three years, but since the Great War performances have been given at irregular intervals. There are magnificent grounds of about 200 acres. A similar smaller 'palace' was erected for the World's Fair in New York on Sixth Avenue in 1853, but was destroyed by fire in 1858. The present Bryant Park is on the site.

Csaba, a tn. of Hungary in the co. of Békéscsaba. There are distilleries and flour mills, and a trade in corn, hemp, wine, etc. Pop. 42,599.

Csanád, a co. and tn. of Hungary, bounded by the Maros on the S. The chief town is Mako. A considerable part of C. was allotted to Rumania after the Great War. Pop. 129,910.

Csárdás or **Czardasch** (Hung. *csárda*,

tavern), a Hungarian national dance, consisting of two movements, *andante* and *allegro*, in $\frac{4}{4}$ or $\frac{3}{4}$ time throughout. The two parts are called the 'lassu' and the 'friss' (*frischka*), the former being mostly in the minor mode, the latter in the major. Any number of couples may dance it, all doing different steps and figures.

Csepel, an island of Hungary, 30 m. long, enclosed by two arms of the R. Danube, just below Budapest. C. was once a favourite summer residence of the kings of Hungary. Fruit and wine are produced.

Csiký, Gregor (Gergely) (1842-91), a Hungarian dramatist, noted for his vivid depiction of ordinary occurrences in modern life. His most successful plays include *Az Ellenállhatatlan* (The Irresistible); *A Proletárok* (Proletariat); *Joslat* (The Oracle); *Mukányi*; *Spartacus*; *Nora*; *Két Szerelmem* (Two Loves); *A Szégyenlős* (The Bashful). His best novels were *Arnold* and *Az Atlasz-Család*.

Csokonay (Csokonai), Vitéz Mihály (1773-1805), a Hungarian poet. He was above all a lyrist, and inspired by the Hungarian folk-songs he helped to develop the national poetry. Among his most popular works may be mentioned *Magyar-Musa*, 1796; *Amaryllis*, 1803; *Dorottya*, 1804 (similar in style to Pope's *Rape of the Lock*); *Anakreoni Dalok*; *A Pásztor Király*, 1806. His collected works appeared in 1813 and 1846 (published by Toldy).

Csoma de Kőrös, Alexander (Sandor) (c. 1790-1842), a famous Hungarian traveller and Orientalist, educated at Nagy-Enyed College, then at Göttingen. His life-long ambition was to discover the real origin of his race—the Magyars—supposed to have come from Asia, but he died leaving the problem unsolved in spite of all his efforts. While journeying to Tibet and China to continue his researches, he d. at Darjiling. See *Duka's Life*, 1885.

Csongrad, a tn. of Hungary, cap. of the co. Csongrad. An important trading centre situated at the confluence of the Tisza and Kőrös, 70 m. S.E. of Budapest. Pop. 25,900.

Ctenodactylus (Gk. κτείς, comb. δάκτυλος, finger), a genus of rodent in the family Octodontidae, which contains the coypu and porcupine-rats. *C. Massoni*, Masson's comb-rat, is the single species, and is a native of the Cape of Good Hope.

Ctenophora (Gk. κτείς, comb, φόρος, bearing), a large division of the Coelenterata (q.v.) which consists of free-swimming marine animals, gelatinous in structure, and usually phosphorescent. *Cestum veneris*, the Venus' girdle, is a beautiful example.

Ctesias (Κτήσιος) (d. c. 396), a Greek physician and historian of the fifth century B.C., native of Cnidos, Asia Minor. He accompanied the expedition of the younger Cyrus against Artaxerxes, and was captured by the Persians at the battle of Cunaxa, 415. For about seventeen years he then remained as physician at the court of Artaxerxes Mnemon. A contemporary of Herodotus, his jealous mind is revealed in his attempt to depreciate that historian's work. Fragments of his *History of Persia* (Ἱστορία), in 24 books, and *Treatise on India* (Ἰνδικά) are extant, and there are abridgments of each by Photius. See fragments edited by Müller (appendix to Dindorf, *Herodo-*

Ann. vi. 42) calls it 'redes imperii.' The modern equivalent is Tak-i-Kesra, while the ruins of ancient C. and of Seleucia (on opposite bank) are together called El-Modein (Al Madain, the two cities) by the Arabs. It was captured by various Roman emperors between 116-362 A.D. In the fourth century C. was the capital of the Sasanian dynasty. Yezdigerd surrendered it to the conquering Arabs, 637. The façade and arched hall of a marvellous palace, said to have been built by Chosroes I., are included in the ruins left. (See Benjamin, *Story of Persia*; Ives, *Travels*, ii.) During the Great War an important battle was fought here between the Turks and British. In the summer of 1915,



RUINS OF ANCIENT PALACE, CTESIPHON

tus, 1844), Bähr (1824), Gilmore (1838). Consult Blum, *Herodotus and Ctesias*, 1836; Mahaffy, *History of Greek Literature*, 1895; Wachsmuth, *Einleitung in das Studium der alten Geschichte*, 1895.

Ctesibius (Κτησιβίος) (c. 250 B.C.), a Greek physicist of Alexandria, famous for various mechanical inventions. Among these are the clepsydra (water clock), force-pump, hydraulic organ, and other machines. C. was first to discover the elastic force of air and to apply it as a motive power. Hero of Alexandria was his pupil and helper.

Ctesiphon (Κτησιφών), an ancient city of Mesopotamia, on R. Tigris, 20 m. from Bagdad, materials for which city were supplied by its ruins. Mentioned by Polybius (v. 45) and Ammianus (xxiii. 6), it rose to importance under the Parthian, and later Persian, empire. Strabo describes it as the winter residence of the Parthian kings, and Tacitus

General Sir Charles Townshend advanced up the R. Tigris, capturing Amara and Kut-el-Amara. Pushing on from here with an inadequate force he advanced towards C. and on Nov. 21 drove the Turks from a strong position at Lajj and then prepared for an assault on their position at C. itself. He attacked on the night of Nov. 22; but, though he met with some initial success, the Turkish reinforcements were so overwhelmingly strong that Townshend was compelled to withdraw to Kut-el-Amara, where he eventually surrendered with all his force.

Cuango, see CONGO.

Cuba, the largest island of the W. Indies, now an independent republic, at the mouth of the Gulf of Mexico, 130 m. from Florida, separated from it by Florida Strait. Separated from Haiti on the E. by Windward Passage, from Jamaica on the S. by the Caribbean Sea, from Yucatan on the W. by the Yucatan Channel. Length

from Cape Maisi (E.) to Cape San Antonio (W.), 730 m.; breadth 20-90 m.; area (with Is. of Pines and numerous keys) 43,500 sq. m. The coast-line is mostly abrupt and steep; a large marshy depression (*trocha*), 45 m. wide, connecting Morón and the S. coast, divides C. into two distinct parts, E. and W. There is a series of terraces on the E. The coasts are very dangerous owing to reefs and shallows extending nearly 2½ m. out to sea, but there are good harbours and bays, as at Havana (capital), Guantánamo, Santiago de Cuba, Manzanillo, Bahía de Jagua, Cabañas, Padre, and Matanzas. There are mountain ranges all over the island, the highest being in the E., and all grouped near the coasts. The Sierra Maestra, or Grupo Macaba, culminates in Pico Turquino or Monte Azul (about 8400 ft.), and is continued in the Sierra del Cobre. Near by is the hill region W. of Yunque (the Anvil of Baracoa, 1825 ft.), with Sierras de la Vela, Toar, etc. In the W. is a hilly district, with Pico de Potrerillo, Sancti Spiritu, Pan de Matanzas in the N. (1280 ft.); Cordillera de los Orgaños (Pan de Guajaibón, about 2000 ft.), stretching through Pinar del Río to Havana. Other peaks are Gran Piedra (5000 ft.) and Cerro de Oro (3000 ft.). The rivers are not very large, the chief being the R. Cauto, flowing into Manzanillo bight; others are: R. Saza, draining the swamps (*ciénegas*) to the N. of the Zapata peninsula, and Sagua la Grande. The climate is tropical, average temperature 77°, rarely falling as low as 50°. Chief rainy season, May to October. Earthquakes are more frequent in the E. than in the W. The numerous forests contain mahogany, ebony, cedar, fustic wood, besides yielding dye-woods, fibres, gums, and resins. Flowers and shrubs also abound, including the royal palm. The chief products are sugar (nearly half the cultivated area being planted with sugar-canes, especially in Santa Clara and Matanzas, which supply one quarter of the world's crop), and aromatic tobacco in Pinar del Río, particularly in the district of Vuelta de Abajo, the finest being produced on the banks of the San Sebastian, and made into the famous 'Havana cigars.' About 600,000 bales, each of 140 lb. of tobacco, are produced. Coffee-planting is now of little importance. Other products are Indian corn, maize, rice, cacao, indigo, potatoes. There are many fruits (oranges, bananas, lemons, shaddocks, figs, etc.) and vegetables; mallochia grass and cassava are grown; cattle and poultry breeding are carried on, and wax and honey

produced. Over 1,000,000 tons of sugar were produced in 1909, largely exported to the U.S.A., while in 1925-6 the crop amounted to 5,292,000 tons, some 1,600,000 acs. being under sugar plantations. The production has declined since these freak years by about 500,000 tons, and each crop year it is limited by presidential decree. The average tobacco crop is 500,000 bales (bale, 120 lb.). Bats, agoutis, and the solenodon are the only indigenous mammals. Birds are very numerous. The crocodile and caiman are found in the marshes. Other reptiles are the boa and iguana. C. is famous for scenic beauty, the Yumuri Valley being one of the most lovely. Iron ore is mined by American companies near Santiago and Juragua. There are also manganese deposits, still some copper in Sierra del Cobre, asphaltum in the Bay of Cardenas, and salt. Gold and silver are rare. There are more than 3000 m. of railway, admirably managed. Automobiles are much used and popular, and electric street cars run in most towns. Hotels are generally good. There is no colour bar, all colours are equal, although very black women will sometimes try to powder their faces more or less white. In 1861 only 19 per cent. of the pop. could read and write, in 1925 85 per cent. Many are becoming Americanised, and speak English fluently. Some C.'s work well, but the average countryman is said to work from Tuesday to Thursday and play the guitar, dance, and attend cock-fights the rest of the week. The poor are so because they are lazy. Some of the blind beggars are remarkably keen-sighted. In 1922 the first broadcasting station in Latin-America was installed at Havana. Bull-fights were abolished in 1899. There are 541 newspapers and magazines. Chinese coolies and negroes are much employed for labour.

History.—Discovered by Columbus, 1492; he saw several of the natives of C. going about with fire-brands in their hands, and certain dried herbs, which they rolled up in a leaf and, lighting one end, put the other in their mouths, and continued puffing out the smoke. A roll of this kind they called a tabaco. It was colonised by Spaniards about 1510, negroes replacing the Indians as slaves; it was a Spanish possession till 1898. In the seventeenth century C. was harassed by raids of Eng. Fr., and Dutch, who built the primitive fortifications of Havana and Matanzas as defences. During 1868-78 there was war against the Spaniards for Cuban independence. In 1880 the

Cortes passed an act to abolish slavery. During 1895-98 a second war for independence caused intervention of the U.S.A. On the night of Feb. 15 the U.S.A. battleship *Maine* was blown up in Havana Harbour and 264 men were killed. War with Spain followed. C. was under American military control, 1899-1902. In 1901 a republican form of gov. was established, the first president being Estrada Palma. The 'Platt Amendment' contained guarantees against foreign interference. In 1903 a commercial convention was signed between C. and the U.S.A. In

300,000,000. The pop. is 3,242,497, of whom 2,294,115 are white and 830,791 coloured. Cabrera, *Cuba and the Cubans* (translated 1896); Clark, *Cuba and the Fight for Freedom*, 1896; Canini, *Four Centuries of Spanish Rule in Cuba*, 1898; Robinson, *Cuba and the Intervention*, 1905; Alger, *The Spanish-American War*, 1901; Terry's *Guide to Cuba*, 1926.

Cubango (**Kubango**, or **Okavango**). a river of W. Africa, about 1000 m. long, rising near the Cuanza's sources, E. of Benguela, forming part of the boundary between S.W. Africa and the Portuguese Angola.



HAVANA, CUBA

[Canadian Pacific

President's Palace and New Plaza

1905 a rebellion against the governor was quelled by the U.S.A. Mr. Taft, U.S.A. Secretary of War, was sent by President Roosevelt as mediator and became provisional governor, being succeeded by Magoon. The U.S.A. troops, under Generals Funston and Bell, restored order. New educational measures were enforced, 1900. The new gov. was settled by President Roosevelt in Jan. 1909. The American troops were finally withdrawn on April 1, 1909, and henceforth affairs ran smoother. During the War the high price of sugar brought phenomenal prosperity, which ended when the price of sugar fell from 23 cents to 2 cents a pound. The Cubans left the development of their is. largely to Americans, who take from her annually C. products to the value of 400,000,000 dollars and sell to her goods worth

It flows in a S.E. direction, and into Lake Ngami, under the name Tioge or Tonke (Taukhe).

Cubature, the process of finding the volume of a solid. The word is parallel to 'quadrature,' which means resolving an area into a number of squares, while C. means resolving a volume into a number of cubes. To find the value of a volume from particular data is an arithmetical problem in the case of parallelipeds and is usually dealt with under the name of *mensuration* (*q.v.*). Where figures are bounded by curves the process is usually analytical, and is based on the theorems of Pappus of Alexandria, which state: (1) If any plane figure revolves about an external axis in its plane, the volume of the solid generated by the revolution is equal to the product of the area of the

figure and the distance travelled by the centroid of the figure; (2) if any line in a plane revolves about an external axis in the plane, the area of the curved surface generated by the revolution is equal to the product of the length of the line and the distance travelled by the centroid of the line.

Cube, a regular solid bounded by six square plane faces, opposite sides being parallel, in such a way that three edges always meet at right angles to each other. In arithmetic the C. of a number is found by multiplying it by itself three times; thus the C. of $2 = 2 \times 2 \times 2 = 8$. Similarly the C. root of any number is that number which multiplied by itself three times gives the original number; thus the C. root of 64 is 4. The volume of a C. is measured by the C. of the length of a side; thus the volume of a C. with sides 2 in. long is 8 cubic inches.

Cubism. This term, applied to a new school of art arising from Post-Impressionism, was first used by Henri Matisse in 1903 in reference to a picture by Braque: '*Encore des cubes! assez de cubisme!*'. But scorn and derision could not kill the movement, and three years later exhibitions of Cubist art were held in Paris and Brussels, while 1912 witnessed one in Barcelona.

The actual founder of Cubism was the Spanish artist Pablo Picasso (b. 1881), follower of Paul Cézanne, the great Fr. Post-Impressionist, and Georges Braque was a close runner-up of Picasso. Cézanne had formulated the theory that 'everything in nature is modelled on the sphere, the cone, and the cylinder; one must first understand how to paint these simple figures, and one can then paint anything.' The Cubist makes no attempt to give an exact reproduction of any objects visualised, but by means of portraying their colours and solidity in his own peculiar style to show the impression they make on the artistic mind.

Cubism is a passing phase of art and has made especial appeal to the Fr. mentality and temperament. Some of its chief exponents are André Dérain, Fernand Leger, Albert Gleizes, Jean Metzinger, Francis Picabia, and the American Arthur Dove. See A. J. Eddy, *Cubists and Post-Impressionism*, 1915; A. Gleizes, *Du Cubisme*, 1920; Frank Rutter, *Evolution in Modern Art*, 1926; R. H. Wilenski, *Modern Movement in Art*, 1927. See also PAINTING.

Cubit (Lat. *cubitus*, elbow), a primitive linear measure employed by the ancients, equal to the length of the arm from the elbow to the tip

of the middle finger. There is much discussion as to the exact length of the Hebrew C., now generally fixed at 17 to 18 Eng. in. The Rom. C. was about 17½ in., and the Egyptian C. ('C. of Memphis') about 20.7 in. See Dr. Smith, *Dictionary of the Bible*; 'Weights and Measures' in Hastings' *Dict. of the Bible*. See also FOOT, PALM, SPAN.

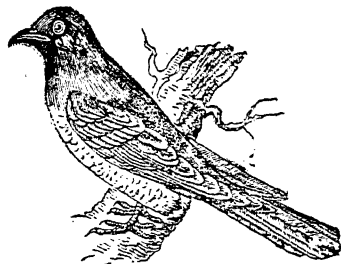
Cubitt, Sir William (1785-1861), a Eng. civil engineer of Norfolk. He was known as an inventor of machines, such as self-regulating sails for wind-mills, and the treadmill (1818, soon introduced into the gaols of Great Britain). C. came to London, 1826, becoming engineer of the S.E. Railway. He constructed the canal at Oxford, docks at Bute, Cardiff, and Liverpool, the Berlin water-works, and various bridges. He also superintended the erection of the Crystal Palace in Hyde Park, 1851, and was knighted for this service. See *Gent Mag.*, Nov. 1861.

Cuchullin (Cuchulinn, or Cuchulainn), the name of the chief warrior and hero in the Conchobar-Cuchullinn heroic cycle of Ireland. He is usually styled son of Sualdam, an Ulster warrior, but seems to stand in a special relation to the god Lug. C.'s earliest name was Setonta, and he was brought up at Dun Imbrith (Louth). At the age of six he went to the court of Conchobar, King of Ulster. He slew the hound or watchdog of Culann the smith, becoming for a time guardian of his domain instead, hence his name 'Culann's hound' (Cu-Chulinn). Later the warrior slew the three sons of Necht, hereditary foes of the Ulstermen. After learning chivalry with Domnall the Soldierly and the Amazon Scathach in Alba, he married Emer, daughter of Forgall the Wily. At the age of seventeen he defended the Ulster frontier against the forces of Medb of Connaught. He was killed some ten years later by Lugaid and the children of Calatin Dána. Some place the date about the beginning of the Christian era. In *Fled Bricrend* (Bricriu's Feast, eleventh or twelfth century) C. tells the story of a challenge and beheading similar to that of the Middle Eng. poem, *Sir Gawayne and the Green Knight*. See Hull, *The Cuchullin Saga*, 1898; Nutt, *Cuchulainn, the Irish Achilles*, 1900.

Cuckfield, a small market tn. of Sussex, England, 12 m. N.W. of Lewes. It is noted for its fairs, held three times a year. Pop. about 2000.

Cuckoo, a sub-family of the Cuculinae, family of the Cuculidae, containing nearly 200 species. The name is derived from the note of the common European C. (*Cuculus*

canorus) which appears in England in the spring, migrating again to warmer climes as early as Aug. Most species are remarkable for their parasitic habits. There is no permanent attachment of male to female, and no nest is built. When the female has laid an egg on the ground, she takes it in her bill and lays it in the nest of some other bird. The egg is then



CUCKOO

hatched and the young bird is fed by the owner of the nest. When the young *C.* attains sufficient strength (and it early does this) it expels its foster-mother's young from the nest by working itself under them and jerking them out. The yellow-billed *C. (Coccyzus Americanus)* incubates its own eggs.

Cuculidæ, a family of the sub-order Cuculi of the order of birds Cuculiformes. It includes the cuckoos and their kin. They are found in greatest variety in the Indian regions. Cuculinæ is Swainson's name for the sub-family of the Cuculidæ, which comprises the true cuckoos. *C. canorus*, the European cuckoo, belongs to the group, and is well known in Britain. The voice of the female is a mere clattering, and it is the male which utters the familiar call-note in the breeding season.

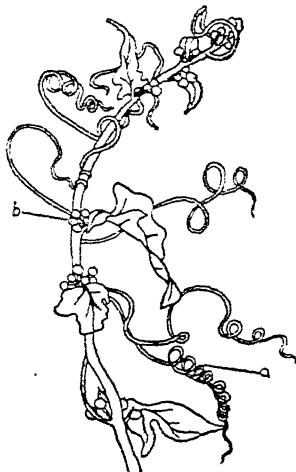
Cucumber, or *Cucumis sativus*, a species of Cucurbitaceæ, which is largely cultivated. It is a kind of trailing annual, and the unripe fruit is used for salads and pickles. The finest specimens are obtained from shaded plants growing in a warm, damp atmosphere, and therefore developing rapidly. When fine and long fruit are desired, the plant should not be allowed to bear early, and the female blossoms should be destroyed until the plant has become vigorous and well rooted in the bed.

Cucumis, a genus of Cucurbitaceæ, is indigenous to the tropics and to sub-tropical lands. In this genus the stamens are free and the tendrils are

believed definitely to be modified leaves. *C. Melo*, the melon, is a valuable plant of which the native country is unknown, and with *C. sativus*, the cucumber, has been in cultivation for centuries. Tartary is sometimes assigned to the cucumber as its home.

Cucurbita, the genus from which the order Cucurbitaceæ takes its name. The species all grow in America, but their native country is entirely unknown, and they are cultivated in Europe, Asia, and Africa; most of them are edible and harmless. *C. Pepo* is the pumpkin, of which the squash and vegetable marrow are varieties; *C. maxima*, the common gourd or giant pumpkin, is well-known in N. America.

Cucurbitaceæ, a widespread natural order of dicotyledonous plants, most



WHITE BRYONY

of which are of a trailing or climbing habit. Many of the species are useful or remarkable, for the order comprehends such plants as the melon, gourd, cucumber, colocynth, and bryony. The fruit is generally fleshy, and is often very large; the melon is typical, with a berry-like fruit called a *pepo*; the seeds are exalbuminous. Some of the principal genera are *Cucurbita*, *Cucumis*, *Lagenaria*, and *Bryonia*.

Cucuta, or San José de Cucuta, a tn. of Santander, Colombia, S. America, on the Venezuelan frontier. The tn. was destroyed by an earthquake,

1875. Coffee is largely cultivated here. Pop. about 12,000.

Cud, the sodden bolus of hastily swallowed fodder which ruminants drive back from the paunch into the mouth to be leisurely chewed, when semifluid is formed which repasses into the stomach.

Cudahy, a city in Milwaukee co., Wisconsin, U.S.A., with manufs. Pop. 10,631.

Cuddalore, Kudalur, or Gudalur, a tn. of British India, Madras, capital of S. Arcot district, 15 m. from Pondicherry on the Coromandel coast. It has extensive trade, exporting quantities of grain by sea, and carrying on much trade also by land. Native craft only can come right up to the town, but there is good anchorage in the roads, $1\frac{1}{2}$ m. from shore. Two naval actions took place off C.: (1) The drawn action of 1758 between Vice-Admiral Pocock and Comte d'Aché, in which the Fr. suffered heavier losses than the British; (2) the engagement between Vice-Admiral Hughes and the Bailli de Suffren in 1783. This too was indecisive, but Suffren gained the relief of C., and Hughes had to go on to Madras. In 1795 it was finally acquired by the Eng. Pop. (mostly Hindus) 50,527.

Cuddapah, a tn. of India, in the Bombay Presidency, situated on the R. Cuddapah, 140 m. N.W. of Madras. It has a cantonment, court-house and gaol. Soda is obtained from the hills in the district, also salt and salt-petre; there are diamond mines in the neighbourhood. Pop. 18,000.

Cuddesden, or Cuddesdon, a par. of Oxfordshire, England, Henley div., 6 m. from Oxford, 2 m. from Wheatley station. The palace of the bishops of Oxford is here, and a theological college. Pop. about 700.

Cudgegong, a mining township of Wellington co., New South Wales, 45 m. from Bathurst, on R. Cudgegong. Gold, iron, coal, and copper are found. Pop. about 3000.

Cudillero, or Oleiro, a small seaport of Spain, in Asturias, 20 m. from Oviedo, on the Bay of Biscay. Pop. about 10,300.

Cudworth, Ralph (1617-88), an Eng. philosopher and clergyman, son of James I.'s chaplain of the same name, b. in Somersetshire. He graduated at Cambridge, becoming fellow and tutor of Emmanuel's, 1639. C. was at one time rector of N. Cadbury, Somersetshire (1650). In 1642 he published *Discourse Concerning the True Nature of the Lord's Supper*, and *The Union of Christ and the Church shadowed or in a Shadow*, the first causing much controversy long after his death. In

1644 he became master of Clare Hall; 1645 Regius Professor of Hebrew. In 1654 C. was elected master of Christ's College; 1678 he became prebendary of Gloucester. His chief work, *The True Intellectual System of the Universe*, appeared in 1678. It displays great learning, liberality, and independence of mind. He favoured the Platonic philosophy, but in physics adopted the atomic theory. From their views the group of which he was leader were known as Cambridge Platonists. This famous work attempted to confute all the reason and philosophy of Atheism, and to demonstrate its impossibility. His *Treatise Concerning Eternal and Immutable Morality* was published in 1731. A number of his unpublished MSS. are in the British Museum. Among C.'s sermons was one preached before the House of Commons, showing the close connection of religion and morality, and laying the basis for union between philosophy and religion. His daughter, Lady Masham, was a friend of John Locke. See Le Nove's *Fasts*, i.; Martineau, *Types of Ethical Theory*, ii., 1898; Chauncy's *Hertfordshire*; Tulloch's *Rational Theology*, ii.; *Life of Archbishop Sharp*, i., 1825; Birch's *Life*, in edition of C.'s *Works* (4 vols.), 1820; Lowrey, *The Philosophy of Ralph Cudworth*, 1885.

Cue, a tn. of W. Australia, chief in the Murchison goldfield district. It is connected with Geraldton by rail.

Cuenca: (1) A province of New Castile, Spain, chiefly a mountain and plateau region. Area about 6639 sq. m. The elevated tract Serrania de Cuenca has large coniferous forests. Pop. 287,507. (2) Also capital of above province on R. Jucar, 80 m. from Madrid. It has ruined walls, a citadel, cathedral (with chapel of the Albornoces), many churches, and the episcopal palace. Its industries are unimportant. There is a famous bridge, 140 ft. high, across the stream Huecar. Near by is Ciudad Eucantada, with its wonderful stalactite deposits. Pop. 12,965. (3) Cap. of the prov. of Azuay, Ecuador, S. America, is 9000 ft. above the sea. It has 40,000 inhabs., a cathedral, university, trades in conserves, corn and cheese, and makes woollen goods, hats and earthenware. Near by are sulphur springs.

Cuernavaca (formerly **Cuanhua-huac**), a tn. of Mexico, cap. of Morelos State, 36 m. from Mexico. It is finely situated, and has an agricultural academy, a church built by Cortés, and important sugar industries. It is growing popular as a health-resort. Pop. 7120.

Cuesmes, a com. and tn. of Hainault, Belgium, 3 m. from Mons. It has coal mines and railway workshops. Pop. 10,150.

Cuesta, a name given by American geologists to a certain land-formation consisting of an unsymmetrical ridge with a strong escarpment on one side and a gentle slope on the other. Of Spanish origin, the name is used in New Mexico and S.W. U.S.A., for low ridges of this kind. The Cotswolds and Chiltern Hills are Cs. or scarped ridges. See Davis 'On Drainage of Cuestas' in *Proc. Geologists' Assoc.* xvi., 1899.

(1835-1918), a Russian military engineer and musical composer, *b.* at Vilna, son of a Fr. officer, a survivor of Napoleon's army, who was unable to follow the Retreat from Moscow (1812). C. was educated at the Vilna Gymnasium, and studied music with Moniuszko. He soon entered the military college at St. Petersburg (1850), becoming Professor on Fortification there and elsewhere. Among his most noted pupils were Skobelev and the Emperor Nicholas II. His songs, choral and orchestral works, etc., include *William Ratcliff*, 1869; *The Captive in the Caucasus* 1873;



CUENCA, ABOVE THE VALLEY OF THE JUCAR

Cueva, Juan de la (1550-1607), a Spanish poet of Seville. He wrote various kinds of poetry, and his plays are important for their departure from the classic model and their more romantic style. He was one of the founders of the Spanish national drama. *Obras* and other poems were published, 1582. Other works are: *Primera Parte de las Comedias y Tragedias*, 1588; the epic *Betica*, 1603; *El Exemplar Poetico*, 1605, the first Spanish didactic poem. See Ticknor's *History of Spanish Literature*, Antonio, *Biblioteca Hispana Nova*.

Cuevas de Vera, a tn. of Spain on R. Almanzora, 42 m. from Almería. Important for the silver mines in the Sierra Almagera. There is a rich agricultural district all round, and saltpetre is found. Pop. 22,130.

Cui, Caesar (César Antonovich)

Angelo, 1876; *Le Flibustier* (for Richépin's comedy), 1894; *Mam'zelle Fifi*. Other works are: *La Musique en Russie*; *A Short Manual of Field Fortification*. See Countess de Mercy-Argenteau, C. Cui, 1888; Grove's *Dict. of Music*, i.

Cuinchy, vil. in N. France, to the S.W. of La Bassée. In the Great War, C. came within the area covered by the Battle of Loos, Sept., 1915 (see LOOS, BATTLE OF). The main advance took place on Sept. 25. This was preceded by a two days' bombardment. Although the British had used gas, the atmospheric conditions proved unfavourable for its employment, and to this cause is attributed the initial unsuccessful attack on C.; but the British success on other parts of the front caused the Ger. forces to give way eventually at C.

Cuirass (Lat. *corium*, leather), originally a jerkin or leather garment for soldiers, strong enough to be proof against pistols or even muskets. The name was later applied to plate armour protecting the body from the neck to the waist. The C. was strictly the metal covering the front of the wearer, but is now commonly applied to both breastplates and backplates. These are hooked or buckled together, with a piece joined to the back called the *culet*, or *garde de reines*. In antiquity they were commonly made of bronze or iron, and in the fourteenth century formed a regular part of mediæval armour. After Waterloo certain historical Cs. were adopted for modern use. For parade purposes various corps wear richly-decorated leather Cs.

Cuirassiers, the name of a kind of heavy cavalry, a survival of the men-at-arms of feudal armies and of the troopers of the sixteenth and seventeenth centuries, who wore cuirasses and helmets. The first Austrian corps of 'kyrissers' was formed in 1484 by Emperor Maximilian; by 1705 there were twenty such regiments. The Prussian C. were so called under Frederick William I., playing a prominent part in the wars of Frederick the Great. In France C. date from 1666. Both Fr. and Ger. armies still have twelve C. regiments each, the Russian has four. The Eng. Life Guards and Royal Horse Guards had steel C. given them in 1821, but they are not worn on active service, and the name C. is no longer used.

Cujas, Jacques (Latinised name, Cuiacius) (1522-90), a Fr. jurist, consult, b. at Toulouse. He studied law under Arnoul Ferrier. His great reputation as a jurist was gained through his lectures on Rom. law as studied from the originals instead of from the works of commentators. He had an enormous library of old Rom. manuscripts, of which the greater part have unfortunately been scattered and lost. Besides his lectures on Justinian, he published notes on the *Receptæ Sententiæ* of Paulus and *Paratitula*, or summaries of the *Digest*, particularly of the Code of Justinian. The best collection of his works is that published by Fabrot at Paris (1658) in 10 vols.; republished at Naples and at Venice with additions (1758-83) in 11 vols. See Spangenberg, *Cuiacius und seine Zeitgenossen*, 1882, and Berriat Saint Prix, 'Mémoires de Cujas,' appended to his *Histoire de Droit Romain*.

Culasi, or **Colasi**, a tn. of the Philippine Is. It is situated on the coast of Panay, and is noted for its

fisheries. It produces also rice, pepper, coconut oil, and cotton. Pop. about 10,600.

Culbin, regions of sand situated in the N.W. of Elginshire, in Scotland.

Culdees (Celtic *ceile De*, a companion of God), an anct. religious community once found in Ireland and Scotland. Their origin and early history are very obscure. It is probable that they originated when the rule of St. Chrodigang, Archbishop of Metz (d. 766), was introduced into Ireland by the Irish priests. The rule, originally instituted for secular priests under no monastic vows, was extended to include the anchorites, and the order of C. became a sort of annex to the regular monasteries. They apparently had charge of the sick and poor, and assisted in the musical part of the religious services. They never attained to great importance in Ireland, but when they crossed to Scotland at the end of the eighth century, they found their opportunity awaiting them by reason of the gap left by the expulsion of the Iona monks by Nechtun, king of the Picts, in 717, and the inadequacy of the Rom. monks from Northumbria who had come to fill their place. Their life henceforward was very similar to that of the secular canons in England. The pictures of them in the twelfth century, when the first authentic records of them are found, vary considerably. Each C. monastery was an independent community which gave obedience to none save its own abbot, and with no ties connecting it with the others. The community within the monastery seems to have been divided into two sections, one conducting the religious services and the general offices of a religious body, while the other had apparently so far cast off the rules of monastic discipline as to marry and practically live the life of ordinary laymen. Indeed, tradition says that the C. of Dunkeld were all married, only living apart from their wives during their period of service at the altar. The chief C. houses were at St. Andrews, Dunkeld, Loch Leven, Monymusk, and Abernethy. In the reforms inaugurated by St. Margaret and carried out by her son, David I., the C. became canons regular or were absorbed into the regular religious orders. By the beginning of the fourteenth century, the C. as a separate body had disappeared in Scotland. See W. Reeves, *The Culdees of the British Islands*; and W. F. Skene, *Celtic Scotland*, 1876-80. The older view, which was held by some Protestant and Presbyterian writers, that the C. were the first teachers of Christianity, which they preserved

free from the corruptions of the Rom. Church, until they were finally stamped out by the persecutions of the latter, has been effectually disproved by William Reeves (1815-92), Bishop of Down, Connor, and Dromore. For this view see J. Jamieson's *Historical Account of the Ancient Culdees*, 1811.

Culebra, or **Passage Island**: (1) An is. of the W. Indies in the Virgin group, 18 m. from Cape San Juan, Porto Rico. (2) A Naval station of the U.S.A. fleet. Pop. 839.

Culenborg, or **Kuilenburg**, a tn. of Holland, in Gelderland, and stands on the R. Lek. Its chief industry is the manufacture of ribbon. Pop. 9260.

Culiacan, a Mexican tn. and the cap. of the prov. of Sinaloa. It stands on the R. Culiacan, lies W.N.W. of Durango, and a line of railway connects with Altata the port. The town itself was founded in 1531, and is the seat of a bishop. Pop. about 10,300.

Culicidæ, the dipterous insects known to us familiarly as the mosquito, midge, and gnat family, are widely distributed, and in Britain they are represented by about a dozen species. The female is extremely harmful, but the male is harmless. The eggs are laid on substances floating in stagnant water, and the larvæ live on the surface. *Culex pipiens* is a mosquito frequently found in Britain, and it also inhabits the E. Indies.

Cullen, a community of 4868 lepers on a small island to the N. of Palawan prov., Philippine Islands. They elect their own council and supply the policemen and other subordinate officials. Many have been completely cured.

Cullar de Baza, a tn. of Granada, Spain, 68 m. from Granada. Pop. about 8000.

Cullen, a bor. of Scotland, in the co. of Banffshire, situated on Cullen Bay. Since 1200 it has been a royal borough. There is a fine market-place, with a council chamber, assembly hall, and court-room. It possesses a good harbour. Fish is exported. Pop. 1892.

Cullen, Paul (1803-78), an Irish Rom. Catholic prelate; educated in Rome, and rector of the Irish college there, and of the Propaganda College in 1848, securing American protection for it to prevent confiscation of its property during the revolution under Mazzini. Pius IX. made Dr. Cullen Archbishop of Armagh and Primate of Ireland in 1849. He was translated to the diocese of Dublin in 1852, and was created a cardinal in 1866, being the first Irishman to attain to that dignity. Cardinal

C. aided O'Connell, and helped the British Gov. to suppress Fenianism. At the Vatican Council he advocated the definition of Papal Infallibility. C. was the reputed author of a treatise to prove that the earth did not move. He disapproved of the clergy taking an active part in politics. He established numerous schools, convents, hospitals, and churches in Ireland (Mater Misericordiæ hospital).

Cullen, William (1712?-90), a distinguished Scottish physician, b. at Hamilton, Lanarkshire. He attracted great attention by the novelty of his views on the functions of the nervous system, and his pathological doctrine of excitement and collapse. His chief works are: *Treatise on Materia Medica*, 1789; *First Lines of the Practise of Physic*, 1777; and *Synopsis Nosologicæ Methodicæ*, 1769. See Life by Dr. J. Thomson, 1832.

Cullera, a Spanish tn. in the prov. of Valencia and stands on the R. Jucar. It is also a fortified town and the remains of its walls are still standing. Pop. 13,331.

Cullinan Diamond, the largest known diamond, found in the Johannesburg Premier Mine, near Pretoria, Transvaal, in January 1905, and called after the chairman of the company owning that mine. Uncut, its weight was about 3030 carats, three times heavier than that of any other known one. The gem measured about $4\frac{1}{2}$ by $2\frac{1}{2}$ by 2 in., and its girth was $8\frac{1}{2}$ to $1\frac{1}{2}$ in. It had fine cleavage planes, as though only a portion of a larger crystal. The colour for so large a stone is exceptionally pure. It has been valued at from \$2,500,000 to \$5,000,000.

Culloden, a moor in Inverness-shire, Scotland, famed for a victory gained in 1746 by the Duke of Cumberland over the Pretender, Charles Stuart. The victors cruelly massacred the wounded Highlanders. This was the last battle fought in Britain; a cairn and green mounds mark the soldiers' burial-place.

Cullompton, a tn. of Devonshire, on R. Culm, 12 m. from Exeter. It has an old church in the English Perpendicular style, with a tower 100 ft. high. Pop. 2727.

Culmination (Lat. *culmen*, the summit), an astronomical term for the passage of a heavenly body when it crosses the meridian. There are two Cs. in the course of twenty-four hours, the upper, above the pole, and the lower, below the pole.

Culpeper, John, see COLEPEPER, JOHN.

Culpeper (Culpepper), Nicholas (1616-54), an Eng. medical writer and astrologer, a supporter of the

Parliamentarians and religious sectaries. In 1640 he set up as astrologer and physician in Red Lion Street, Spitalfields. His unauthorised translation of their *Pharmacopœia* (1649) excited great indignation among the College of Physicians against C. for infringing the monopolies of medical writers (see *Mercurius Pragmaticus*, No. 21, pt. ii., 1649). Other works are: *The English Physician Enlarged*, 1653 (reissued last in 1809); *Semeiastica Uranica*, 1651.

Culpeper, Sir Thomas, the Elder (1578-1662), an Eng. writer, author of *Tract against the High Rate of Usury* in 1621.

Culpeper, Sir Thomas, the Younger, (1626-97), an Eng. writer on usury, son of Sir Thomas (*d.* 1662).

Culross, a par. and burgh of Scotland in the co. of Fifeshire. It stands on the N. side of the Firth of Forth, and lies W.N.W. of Edinburgh. It contains the ruins of an abbey which was founded in the thirteenth century. Pop.: par. 3261, burgh 508.

Cultivated Plants. It is almost impossible to say when plants were first cultivated, but it is known that millet, rice, and figs are among some of the very oldest of our present-day products. Investigation has proved the original habitat of most plants, and the wild form has in many cases ceased to exist. At the present day cultivation has reached such a pitch that the form in which we know the plant varies very much from the original wild one, and there are various devices known for the further improvement or development of the plant in question. Some plants are cultivated for their seeds, such as all cereals, peas, beans, mustard, etc.; others for their leaves, such as cabbage of all kinds, spinach, tobacco, tea, water-cress, etc.; others again for their flowers, such as cauliflower, cloves, etc.; some for their young shoots and stems, as asparagus and rhubarb; and some again for their fruits, such as plums, oranges, gooseberries, all kinds of nuts, cucumber, tomatoes, etc.; and last but not least is that large class of plants of great service to man cultivated for their roots and tubers. There are many useful products from certain plants which are much cultivated for various purposes apart from edible uses, for instance, starch, vegetable acids such as citric and oxalic, gums, rubber, all the numerous narcotics, such as opium, morphia, etc.

Cultivation, or Tillage (late Lat. *cultivare*, to cultivate, from Lat. *colere*, to till; Old Eng. *teolian, tilian*; Gothic *tilon*, to strive for), denotes the process of cultivating soil for the

purpose of agriculture. It consists of digging, ploughing, harrowing, rolling, spading, hoeing, etc., all of which operations tend to increase the goodness of the soil, and thus to increase its fertility. For surface tillage harrows, weeders, and other agricultural instruments of the fork and spade variety are used. Pulverisation of the soil is essential for the root growth of plants. Breaking up the soil and removing stones and impedimentary matter facilitates the free development of roots and also the free passage of earth and air which increases the health of the plants. Deep ploughing is generally done in the autumn, as during the winter months the changes in temperature affect the soil, causing expansion or contraction according as the weather is wet or frosty. Pulverisation also favours the activity of beneficial organisms in the soil (see NITRIFICATION), and promotes the solution of mineral matter. It also brings about the destruction of weeds and insects which are injurious to the development of cultivated plants. 'Cultivators' are the best instruments for destroying weeds. They are also called 'grubbers,' and a special variety is called 'scarifier.' It consists of a triangular or rectangular iron frame, with fixed teeth or tines. Harrows and rollers are useful in separating the weeds from the soil. When the weeds have been removed the earth is well ploughed, and manure dug deep into the soil. Sub-tillage, or sub-soiling, forms a very important part of C. Below the surface clay, chalk, and gravel are found, and it is the aim of the agriculturist slowly to cultivate his soil to a deeper depth. Heavy clay soil needs constant turning over; and manure should be worked into it. Inter-tillage is carried on while the soil is still occupied by a crop. Trenching and draining also form an important part of cultivation. See AGRICULTURE.

Culverin (Fr. *coulevrine*: more remotely Lat. *colubra*, snake), a term applied loosely to any small gun in the early days of fire-arms. In the sixteenth century it meant the heaviest gun in ordinary use, throwing a 15-pound shot. It was so called from its serpent-shaped handle. 'Culver' and 'whole C.' (as distinguished from 'demi-culverin,' a smaller piece of ordnance) were variations of the name.

Cumæ, an ant. city on the coast of Campania, Italy, W. of Naples. According to Strabo it was the earliest of all Gk. colonies either in Italy or Sicily, although 1050 B.C. is probably too early a date for its foundation. It rapidly became the

wealthiest and most prosperous city in this part of Italy, planted colonies at Zancle (Messina), Puteoli, and Neapolis, and extended the influence of Gk. civilisation all over S. Italy. From 700-500 B.C., C. was at the height of its power, but by 474 B.C. it was compelled to invoke the aid of Hiero, Tyrant of Syracuse, to crush the fleet of its enemies, the Etruscans. In 417 B.C., C. was taken by the Samnites, and 350 B.C. fell into the hands of the Romans, and became a Rom. municipium and colony. In the Hannibalic wars C. in the hands of Sempronius Gracchus.

It consists of a low-lying plain of about 424 sq. m. in area; half of this is bog land, but where the soil can be tilled it is very fertile, and wheat and barley are grown. The chief town is Kardzag Uz Szallas. Little C. lies to the S. of the above district, and is very level, with an area of 1003 sq. m. Tobacco and various kinds of grain are grown, and sheep and cattle are reared. The chief towns are Halas and Felegyhaza.

Cumberland, the most N.W. county of England, bounded on the W. by the Irish Sea and Solway Firth, on the N. by Roxburgh and Dumfries,



CRUMMOCK WATER, CUMBERLAND

resisted a Cathaginian siege (Livy, xxiii.). Under the Rom. emperors C. fell into decay, although Cicero chose to live there. It was garrisoned by the Goths, and was the last place in Italy to hold out against Narses. C. was the residence of the sibyl who gave the Sibylline Books to Rome. Very few remains of the city still exist.

Cumana, a tn. of Venezuela, cap. of the State of Suaxe, situated about a mile from the coast, near the mouth of the Gulf of Cariaco. It claims to be the oldest European city in America. The climate is hot, and earthquakes often occur. There is a trade in sugar, cacao, tobacco, etc. It was completely destroyed by an earthquake in Jan. 1929. In 1926 the pop. was 18,740.

Cumania, a dist. of Hungary, divided into Great C. and Little C.

on the S. by Westmorland and Lancashire, and E. by Northumberland and Durham. The greater part of its surface is mountainous. The S.W. half is taken up by the beautiful Lake District, shared with the neighbouring county of Westmorland. Here are the Cumbrian Mountains, with the peaks of Sca Fell Pike (3210 ft.), the highest point in England, Skiddaw (3058 ft.), and Helvellyn (3118 ft.), and the lakes of Derwentwater with the Falls of Lodore, Bassenthwaite, Ennerdale, Buttermere, and Crummock Water, Wastwater, Thirlmere, and, on the Westmorland border, Ullswater. From the Lake District a network of valleys runs N., W., and S. to a wide coastal plain, and the valley of the Eden divides it from the Pennine Chain, which reaches its highest point in this county in Cross

Fell (2930 ft.). The N.W. portion, bordering on the Solway Firth, is low and flat. The chief rivers of C. are the Eden, the Liddel, the Esk, the Derwent, and the Uddon. The climate is mild except on the uplands during the winter. The rainfall of the Lake District is the heaviest in England. In the mountainous districts the soil is black, peaty earth, but in the plains dry loam predominates, and produces large quantities of oats and turnips, and a little wheat and barley. In the hill pastures cattle and sheep are reared, the 'Herdwick' variety of the latter being peculiar to the county. C. is rich in minerals, coal being worked extensively round Whitehaven, Maryport, and Workington, with much accompanying iron ore, which is also found in the S. near Millom. Gypsum, zinc, and lead are mined, and limestone, granite, and slate are quarried. A little silver is still found, but the copper mines near Keswick and the plumbago works near Borrowdale have been closed. There are various manufactures in the county, woollens, cottons, earthenware, glass, biscuits at Carlisle, pencil-mills at Keswick, and iron shipbuilding at Whitehaven. Large quantities of salmon are caught in the Solway. The chief towns are Carlisle (the capital), Cockermouth, Whitehaven, Workington, Maryport, Wigton, Penrith, and Keswick. C. is part of the diocese of Carlisle, and is divided into four Parliamentary divisions, N., Penrith and Cockermouth, Whitehaven, Workington, each returning one member. The municipal boroughs are Carlisle, Whitehaven, and Workington. After the withdrawal of the Romans, who left many relics, coins, altars, and inscriptions, C. became part of the British kingdom of Strathclyde. In 875 the first reference is made to the kingdom of the Cumbri, and in 945 it was ceded by Edmund to Malcolm of Scotland. Henceforward, until the union of the crowns, it was a constant cause of quarrel between the two nations, now in the hands of one, now of the other. The small landowners in the county, whose lands have been in their families for centuries, are known as 'statesmen,' but most of such small estates have now been absorbed by the large landowners. Area 973,086 acres. Pop. 273,040.

Cumberland, co. seat of Allegheny co., Maryland, U.S.A., situated on the R. Potomac, N.W. of Baltimore, in mountain scenery. It stands on several railways, among them the Baltimore and Ohio railway, and is also situated on the Chesapeake and Ohio Canal. Chief industries: iron

and steel, glass, railway cars and locomotives, artificial silk, etc. It exports large quantities of coal. There is a large dyeing and cleaning estab. Pop. 37,747. A fort was built here in 1754.

Cumberland, a tn. in the co. of Providence, Rhode Is., U.S.A. It includes ten villages, which manufacture cotton and silk goods. Pop. 10,304.

Cumberland, a British cruiser (class A.C., 9800 tons displacement), completed in 1904. Ships of this name figured largely in the eighteenth and nineteenth centuries, as at the capture of Calcutta, 1757. A Federal war-vessel of this name, commanded by Lieut. Morris, was sunk by the Confederate ram *Merrimac* in Hampton Roads, March 1862.

Cumberland, Ernest Augustus, Duke of, and King of Hanover (1771-1851), the fifth son of George III. At the first battle of Tournay, 1794, he lost the sight of his right eye and was severely wounded in the arm, but this did not prevent his remaining in the army. Subsequently he held high military commands in England, and he went again on active service during the last two years of the Napoleonic wars. On May 31, 1810, he was found wounded in his bed, and his valet, Sellis, dead in an adjoining room. The coroner's jury accepted the view that Sellis had tried to murder his master and had then committed suicide; but public opinion believed that the duke had murdered Sellis. It was also rumoured that the duke was guilty of other crimes. On the accession of Victoria, he became King of Hanover. Hated in Great Britain, he was beloved in Hanover, over which he reigned wisely and well.

Cumberland, Richard (1631-1718), Eng. moral philosopher and Bishop of Peterborough, b. in London, and educated at St. Paul's School and Magdalene College, Cambridge. Among his college friends was Samuel Pepys. C. won a great reputation for learning both in science and philosophy and for his simple and upright life and fulfilment of his episcopal duties. Among his works is *De Legibus Nature Disquisitio Philosophica*, written in reply to Hobbes and upholding the utilitarian principle of the public good being the end of morality. He dedicated his *Essay on Jewish Weights and Measures* (1686) to his old friend Pepys. See *Pepys' Diary*.

Cumberland, Richard (1732-1811), dramatist, was educated at Westminster and Cambridge. On leaving the University he became private secretary to Lord Halifax at the

Board of Trade, the office being almost a sinecure. He wrote more than fifty plays, the first to be produced being *The Summer's Tale* in 1765, and the most successful *The West Indian*, brought out by Garrick six years later at Covent Garden. C. now moved in literary circles, but his sensitiveness to criticism prevented him ever becoming popular therein. He quarrelled with Goldsmith, and Sheridan, whom he had offended, caricatured him as Sir Fretful Plagiary in *The Critic*. None of his writings, except his *Memoirs* (1806), have survived. He was buried in Westminster Abbey.

Cumberland, William Augustus, Duke of (1721-65), was the third son of George II., then Prince of Wales. Educated for the navy, the duke for a while served under Admiral Sir John Norris; but when he grew up his tastes inclined to the army, and he was allowed to follow his bent. Promotion for a prince of the blood was rapid in those days, and at the age of thirty-one he was gazetted major-general. Two years later he was appointed to the command of the allied forces in the Netherlands, with Königsegg as his adviser; and in 1745 the office of captain-general of the British land forces at home and in the field, dormant since Marlborough's day, was revived in his favour. He took an active part against the rising of '45, and after the battle of Culloden treated the rebels with such severity that he was nicknamed 'Butcher.' His methods, though drastic, were not injudicious, for, in part at least owing to his proceedings, the Stuarts did not engineer another insurrection in the kingdom. Subsequently the duke held, from time to time, high command abroad, but he never achieved any signal success in the field. There is no adequate biography of him, but there are lives by Andrew Henderson, 1766, and Richard Roll, 1767.

Cumberland Gap, a pass in the Cumberland Mts., is situated in the S.W. of Virginia, U.S.A. Its chief importance during the time of the Civil War lay in its position.

Cumberland Island, in Baffin Land. It is in reality not quite an island, and is situated in the Arctic regions of America, while Davis Strait lies to the N.E.

Cumberland Lodge, in Windsor Park, was formerly the residence of the Ranger. It was enlarged by William Augustus, Duke of Cumberland (1721-65), who resided there.

Cumberland Presbyterians, an American religious sect formed at the beginning of the nineteenth century in Cumberland co., Kentucky. It

was the outcome of a great 'revival,' when there was a dearth of fully-trained preachers to meet the public demand, and men without the usual high standard of theological and educational training demanded by Presbyterianism were ordained. In 1816 the Cumberland Synod adopted a confession of Faith based on the Westminster Confession with certain additions and amendments, and this was again revised at a later date. The doctrines of predestination and unconditional election were eliminated, and the universality of the atonement was accepted. In 1826 a college was established in Princeton, Kentucky, but was transferred to Lebanon in Tennessee in 1842, becoming the Cumberland University.

The Coloured Cumberland Presbyterian Church was an offshoot of the original Cumberland Church, establishing a separate identity in 1869 at the time when the slavery question was rife. Its establishment was inevitable as the Cumberland Presbyterians had their strongest following in the S. States.

Cumberland River, U.S.A., a trib. of the Ohio, rises in the Cumberland Mts. in Kentucky. Its course assumes a S.-W. direction and then a N.W. one till it joins the Ohio. This river, which is navigable as far as Nashville, is over 600 m. in length.

Cumberland Valley, in Pennsylvania, U.S.A., a fertile piece of land watered by the tributaries of the Susquehanna R.; its position being between that river and Maryland. It is a continuation of the Shenandoah Valley.

Cumbernauld, a Scottish par. in the co. of Dumbarton. It lies to the N.E. of Glasgow. Pop. 5261.

Cumbræ, Great and Little, are two islands in the Firth of Clyde, Scotland. They belong to the county of Bute, and on the smaller one is built a lighthouse. Pop. 5952.

Cumbre, La, known also as Uspallata, a pass in the Andes, S.W. of Mt. Aconcagua. It is over 12,000 ft. high, and the tunnel through which the railway is built is about 3 m. in length.

Cumbrian Mountains, a group of mountains in England, stretching from Fell Top, Cumberland, to the state quarries in Lancashire, about 40 m. from N. to S. Sca Fell (3210 ft.) is the highest point.

Cumbrian Rocks, forming the Cumbrian Mts. of England, consist in the N. and E. of lower carboniferous (shale and grit) rocks, with limestone beds. In the S. are volcanic ashbeds and lavas. A few species of

Graptolites and Trilobites have been found, but fossils are rare.

Cumiana, an Italian tn. in the prov. of Turin (Piedmont). Pop. 5170.

Cumin, or **Cummin**, the fruit of a plant which grows wild near the Nile, and is cultivated in S. Europe and India. The fruit, improperly called seeds, is greyish-yellow, strongly aromatic, and the taste is bitter and disagreeable. These C. seeds were formerly used in ordinary medicine, but they are now employed only in veterinary practice, except when forming an ingredient of curry powders. C. is mentioned in the Bible.

Cuming Museum. This is housed in the Central Library, Walworth Road, London, S.E. 17. Its exhibits embrace Natural History, 'Folk' relics, 'Bygones,' Royal Relics, Marshalsea Pump, 'Oliver Twist,' copper coins and tokens, Tinworth Panels. The museum is free and is open daily from noon (Sat. 10 a.m.) to 8.30 p.m., Sun. 6 to 9 p.m.

Cumming, Roualeyn George Gordon—(1820–66), a lion hunter. He was educated at Eton, and after spending some time in India began his hunting in S. Africa. He wrote an account of this life in *Five Years of a Hunter's Life*, 1850; and *The Lion Hunter of S. Africa*, 1858.

Cummings, Bruce Frederick (writing as W. N. P. Barbellion) (1889–1919), b. at Barnstaple, Sept. 7, 1889, son of John Cummings, reporter. Educated locally. Was assistant in laboratory of British Marine Biological Assoc., Plymouth; then reporter; then, by examination, in 1911, joined staff of Natural History Museum, S. Kensington, and pursued investigations concerning lice. His health failing, he resigned 1914 retired to country, and concentrated on his *Journal*, begun in boyhood—a 'human document,' which, on publication, excited the liveliest interest among the reading public.

Cummins, Albert Baird (1850–1926), American Republican senator; b. at Carmichaels, Pa.; son of Thos. Layton Baird C.; educated at Waynesburg Coll. Studied surveying, and became assistant to the chief engineer of the Cincinnati, Richmond, and Fort Wayne Railway. Studied law with McClellan and Hodges, Chicago; admitted to Illinois Bar in 1875; practised in Chicago till 1878, when he removed to Des Moines, Iowa. Became member of Iowa House of Representatives, 1888; presidential elector-at-large, 1892. Chairman of Republican State Committee, 1892–96; member of Republican National Committee, 1896–1900. Four times delegate to Re-

publican National Convention. From 1902 till 1903 he was Governor of Iowa. Became U.S.A. senator, Nov. 1903; and so remained until his death. Through his influence the Senate passed various Bills relating to trusts and railroads. He denounced the methods used at the Republican Convention of 1912. Succeeded Calvin Coolidge as president of the Senate, Aug. 1923; retired, 1924. Died July 30, 1926.

Cummins, Maria Susanna (1827–66), a novelist, was b. at Salem, Massachusetts. Her chief works are: *The Lamplighter*, 1854; *Mabel Vaughan*, 1857; *El Fureidis*, 1860; *Haunted Hearts*, 1864.

Cumnock: (1) Old C. is a Scottish town in the co. of Ayr. It is situated to the E. of Ayr. on Lugar Water and possesses coal mines. Alexander Peden the covenanter is buried here. Pop. 3541. (2) New C. lies to the S.E. of Old C. Pop. 1889.

Cumnor, a vil. in Berkshire, 3½ m. W.S.W. of Oxford. Here was Cumnor Hall, the house where Amy Robsart, the ill-fated wife of Robert Dudley, Earl of Leicester, was murdered. It is described by Scott in *Kenilworth*, but has since been destroyed. Part of the church dates from the thirteenth century, and contains a statue of Queen Elizabeth, said to have been erected at the hall by Leicester. Pop. 1385.

Cunard, Sir Samuel (1787–1865), a shipowner, b. at Halifax, Nova Scotia, where he began life as a merchant. In 1838 he left for England, and in the following year founded the British and N. American Royal Mail Steam Packet Company. He afterwards contracted to carry the mails between England and America. In 1859 C. was made a baronet. See CUNARD STEAMSHIP LINE.

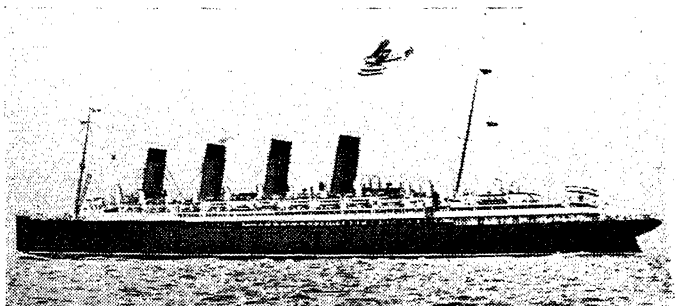
Cunard Steamship Line, founded by Sir Samuel Cunard (*q.v.*), who was the owner of sailing vessels which plied between Boston and Bermuda. His original idea was a regular service of steamships which could do the journey across the Atlantic in less time than the boats which usually carried the mails. Accordingly, when he came to England in 1838, he obtained the help of Mr. George Burns and Mr. David MacIver and founded what is now known as the Cunard Line—at the same time obtaining a contract from the gov. to carry the mails. The first boat of this line was the *Britannia*. Larger and swifter vessels have been added from time to time—the largest in recent years being the *Umbria* and *Etruria*, speed about 19 knots, the *Campania* and *Lucania* with a speed

of 21-22 knots, and the *Lusitania* and *Mauretania*, the latter until recently the fastest liner in the world, with an average speed of 26 knots. All the vessels are fitted with the Marconi system of wireless telegraphy, and a newspaper, known as the *Cunard Bulletin*, is also printed on these steamers. Early in the present century the Co., in agreement with the British Gov., decided to build two leviathan liners—the *Lusitania* and *Mauretania* in order to wrest honours of size and speed from all competitors. The *Mauretania* broke all records in 1909 by crossing from Queenstown to New York in 4 days 10 hrs. 41 mins. at an average speed of 26.06 knots. In 1924 she crossed

Cunas, a race of American Indians living in the Isthmus of Darien and in the alluvial plains of the Atrato. They call themselves Talé, and are connected with the San Blas Indians. They are of medium stature and have a profusion of long black hair.

Cunaxa, an ancient tn. about 60 m. from Babylon. It was here that a battle was fought between Artaxerxes and Cyrus the Younger, in which Cyrus was killed—the story of the battle being related by Xenophon.

Cundigurri, or Khandgiri, the name of a vil. 15 m. S. of Cuttack, in the Puri district of Orissa, British India. Near by are two sandstone hills, Khandgiri and Udayagiri, commanding on opposite sides a narrow gorge



THE 'MAURETANIA'

[Stephen Cribb, *Southsea*]

from New York to Cherbourg in 5 days 1 hr. 49 mins., but in 1929 the *Bremen*, a newly-built German vessel of the Norddeutscher Lloyd line, did the latter voyage (outward), in 4 days 18 hrs. 17 min. The *Aquitania* (1914) with a tonnage of 46,000, has also many speedy crossings to her credit. During the Great War 56 per cent. of the Co.'s tonnage was lost through enemy action, but a big shipbuilding programme resulted in the replacement and extension of services until in 1930 the Cunard fleet consisted of 18 big liners ranging from 14,000 to 53,000 tons, the gross tonnage of Cunard and Associated Lines' ships being nearly 1,000,000. In the same year two huge new liners were projected, of size, speed and luxury unsurpassed. The contract for one of them was awarded in Dec. 1930 to John Brown & Co., of Clydebank. In length 1018 ft., and tonnage of 73,000, she is estimated to be 14,000 tons greater than any other ship afloat, and the cost of building will be approximately £4,500,000.

in the jungle. The numberless caves undermining these hills are thought to conceal many memorials of primitive Buddhism.

Cunégo, Domenico (1727-94), a celebrated Italian engraver, b. at Verona. He studied as a painter under Francesco Ferrari, but deserted painting for engraving and settled in Rome, 1761. He engraved twenty-two plates for Gavin Hamilton's *Scola Italica*, among which were some of the frescoes of Michelangelo in the Sistine Chapel, 'La Fornarina' of Raphael, and also his 'Galatea.'

Cuneiform is the name given to the wedge-shaped writing first used by the early Babylonians. It was originally picture-writing, of which the pictures were made up of a number of wedge-shaped impressions printed on soft clay with the square tip of a reed. Later the pictures became patterns and the signs came to represent syllables, but not letters. Other people to use C. were the Persians and the Hittites. See under WRITING.

Cunene, a riv., some 720 m. long,

in Angola, Portuguese West Africa. It rises on the tableland of Benguella, and descends in a series of rapids and reaches the sea with a westerly course, its mouth being blocked by sandbanks. The C. drains an area of 42,800 sq. m.

Cuneo, or Coni : 1. A prov. of N. Italy belonging to Piedmont, situated between the Cottian Alps, the Maritime Alps, and the R. Po. Its products are mainly agricultural, corn, hemp, flax. Its manufactures are linen, silk, and marble goods. Area, 2868 sq. m. Pop. 687,800. 2. Cap. of the above, an episcopal see of Piedmont, 55 m. S. of Turin by rail. It was once strongly fortified, and was the scene of several sieges on account of its strategic importance. It has a fine cathedral, lately restored, and a Franciscan church of the twelfth century, now used as a military storehouse. The chief manufactures are silk, cotton, and paper. Pop. of commune 31,275.

Cunha, Nuno da (1487-1539), Portuguese commander, distinguished himself by the capture, in 1529, of Mombasa, now in Br. E. Africa. In the same year he superseded Sampeyo as viceroy of the Indies, and on his way out took Ormus, one of the E. Indies, which had rebelled and massacred the Portuguese, and despatched the traitor Xaref, who had encouraged the revolt, to Lisbon. Without firing a shot C. succeeded in gaining possession of Diu, a stronghold on the Gulf of Cambay, which it was necessary to secure for the safety of his country's settlements. In 1537 he was bravely defending Diu with a garrison of 700 against the assaults of Soliman, the Turkish admiral, when he was recalled home.

Cunha, Tristão da (1460-1540), a Portuguese navigator and discoverer, was in 1504 nominated the first viceroy of Portuguese India, but a temporary attack of blindness prevented him from filling the post. Two years later King Emmanuel entrusted C. with a fleet of sixteen vessels, five of which formed a squadron under the command of Alphonso D'Albuquerque. With this detachment C. discovered a group of three volcanic islands in the S. Atlantic, which still bear his name, visited Madagascar and Mozambique, defeated the Arabs in Brava and took possession of Sokotra (1507). His object was to gain control of all the trade with the E., and as an aid to this he built a fort at Coco (Tamarida). In 1514 the king chose him as envoy to Pope Leo X., who received homage from C. for the new Portuguese lands.

Cunningham, Sir Alexander (1814-93), an authority on Indian archæo-

logy, was a son of the poet, Allan C. Many years of his life were spent in the British army in India, and his various writings on Indian statistics and architecture are the fruits of a wide experience. His *Archæological Survey of India* appeared in 1871.

Cunningham, Allan (1784-1842), a Scottish poet and biographer, was born near Dalswinton, Dumfriesshire. He was apprenticed to his uncle, a builder, but in 1810 he went to London and wrote for the Press. In the same year appeared *Remains of Niithdale and Galloway Song*, published by Cromek, most of which were composed by C. In 1814 he became secretary to Sir Francis Chantrey, the sculptor, to whom he rendered many valuable services, offering him suggestions and inducing Sir Walter Scott and Southey to sit to Chantrey. In 1822 he published his drama *Sir Marmaduke Maxwell* and the epic *The Maid of Elvar*, and in the same year *Traditional Tales of the English and Scottish Peasantry*. In 1825 he edited *The Songs of Scotland, Ancient and Modern*, and in 1829-33 he wrote *Lives of the Most Eminent British Painters, Sculptors, and Architects*, in six volumes, for the Family Library. In 1834 he published an admirably re-edited edition of Burns's works in eight volumes, with a biographical preface containing many new and interesting facts of the poet's life. Just before his death C. had a stroke of paralysis, the effects of which are obvious in *The Memoirs of Sir David Wilkie*, published after his death. C.'s songs were for the most part in the manner of Burns, and although they were much inferior to his model's, still retain some popularity. See D. Hogg's *Life of Cunningham*, 1875.

Cunningham, John (1819-93), a Scottish church historian, whose fine scholarship renders his *Church History of Scotland* (1859-82) an invaluable book of reference. In 1868 appeared his *History of the Quakers*.

Cunningham, Joseph Davey (1812-51), an historian of the Sikhs, was the eldest son of Allan C. the poet. From 1837-45 his various appointments brought him into close contact with the Sikhs, whose *History* he finally published in 1849. In 1838 he was present at an interview between Lord Auckland and Runjeet Singh, and during the first Sikh war he served as political agent on the field. But his career was irretrievably damaged by certain disclosures he made in his history with reference to the bribing of two Sikh chieftains during the war.

Cunningham, Peter (1816-69), a publisher and author, was a son of

Allan C. the poet. As publisher he brought out Johnson's *Lives of the Poets*, whilst his chief original works were *The Life of Inigo Jones*, 1843, and a memoir of J. M. Turner, 1852. Though condensed and voluminous, this last is flavoured with diverting anecdotes and gives many quaint pictures of the manners of different times.

Cunningham, William (1805-61), a Scottish theologian. During the ten years' conflict which preceded the disruption and the foundation of the Free Church in 1843, C. threw himself heart and soul into the controversy, giving the whole force of a fine intellect and the full moral support of a splendid character to the 'Non-intrusionist' principles he had adopted. In 1847 he was appointed principal of New College, Edinburgh, where he had already lectured since 1843 with fervid interest and withal surprising impartiality on church history and divinity. A founder of the Evangelical Alliance, he was in 1859 moderator of the General Assembly.

Cunningham, William (1849-1919) theologian and political economist, was educated at Edinburgh Academy and Cambridge. In 1899 he gave a course on economic history at Harvard University, and was chosen Hulsean lecturer in 1885. Became Archdeacon of Ely, 1907. Among his valuable text-books and histories may be cited: *Growth of English Industry and Commerce*; *English Industrial History*, 1895; *Use and Abuse of Money*, 1891; *Western Civilisation*, 1894; *Modern Civilisation*, 1896; *Rise and Decline of Free Trade*, 1904; *Cure of Souls*, 1908; *Christianity and Social Questions*, 1910; *Case against Free Trade*, 1911; *Efficiency in the Church of England*, 1912; *Christianity and Economic Science*, 1914; *English Influence on the United States*, 1916; *Progress of Capitalism in England*, 1916; *Increase of True Religion*, 1917.

Cunninghame Graham, Robert Bon-tine (b. 1852), writer and Socialist agitator, Scotch laird and Spanish grandee. He was educated at Harrow, and represented N. Lanarkshire in parliament from 1886 to 1892. His publications include: *Aurora la Cujiti*, 1898; *Mogreb el Acksa*, 1898; *A Vanished Arcadia*, 1901; *Success*, 1902; *Life of Hernando de Soto*, 1903; *His People*, 1906; *Charity*, 1912; *Brought Forward*, 1916; *Cartagena* (in Colombia) and *Banks of the Simu*, 1920; *Doughty Deeds*, 1925; *Pédro de Valdivia, Conqueror of Chile*, 1926; *Jose Antonio Píez (1790-1873)*, 1929.

Cunoniaceæ, an order of trees or shrubs inhabiting S. Africa, S.

America, and sometimes the E. Indies. Little is known of their properties except that the bark is often very astringent and used for tanning purposes. The fruit is generally a capsule with albuminous seeds. The chief genus is *Cunonia*.

Cuntis, a tn. with thermal sulphur springs, 15 m. N. of Pentevedra, in the dist. of Caldas in Galicia, Spain. Pop. 7690.

Cup and Ring Marks are found on sepulchral monuments of the stone and bronze ages, on small, loose stones, rock faces and earth-embedded boulders round the sites of primitive communities and habitations in almost every part of Europe, and also in many quarters of America, although the rings are rarely found on this continent. In Scandinavia they are still regarded with superstitious awe, and most archaeologists agree in tracing a close connection between these cups and circles and the fetishes and ceremonial symbolism of our remote forefathers. Frequently they occur in the neighbourhood of the megalithic remains of India and Europe, and in Prussia they are found, curiously enough, on church faces. It seems, further, that they are not unlike the symbols of Siva engraved in modern temples. The cups are circular cavities, sometimes grouped in hundreds, with diameters varying from 1 to 4 inches and with their rims usually quite independent, though rarely these touch. It is suggested that these cavities arose from the Indian practice of cracking hickory nuts in some such hollow by striking them with a stone, whilst it is quite possible that the larger basins in rocks were used as mortars. The rings up to six in number, flow concentrically round the cups, though they are not always found with them. Where the circles are incomplete, a tiny passage usually radiates from the cup in the centre to the outermost ring. Achhabreac in Argyllshire affords excellent illustrations of these curious sculptures.

Cupar, or Cupar-Fife, a royal, municipal, and police bor. and the co. tn. of Fife, on the R. Eden, 10 m. S.W. of St. Andrews, 30 m. N.N.E. of Edinburgh. Its chief industry is linen-weaving, and there is a beet sugar factory and a large corn market. The chief buildings are the town hall, corn exchange, and Duncan Institute. The ancient seat of the Macduffs, Earls of Fife, is now a school. In front of it in 1552 there took place one of the earliest performances of Sir David Lindsay's *Ane Satyre of the Three Estaitis*. Pop. 6576.

Cupellation, a method of assaying gold and silver. See ASSAYING.

Cupid (Lat. *cupido*, desire), the Roman name for the god of love (Gk. *Ἔρως*), also Amor. He is generally represented as a winged, nude child, joyous and mischievous, with a bow and arrows, and sometimes a torch and quiver, and blindfolded. The arrows he aimed at the hearts both of men and of the gods of Olympus to kindle them into the flame of love. He is generally represented as the son of Venus by Mars, the god of war, but sometimes by Jupiter or Mercury. For the story of the love of C. and Psyche, see *Psyche*, also Andrew Lang's beautiful version of the Apuleius myth which denotes the striving of the soul after perfection.

Cupola (It., from Lat. *cupula*, a small vault or cask), a term in architecture for a spherical vault or concave ceiling—the dome of a building. The form is of Byzantine origin and was adopted by the Romans. It was much used in ecclesiastical buildings, where it was lit by windows of coloured or painted glass. In domestic architecture the C. is generally of glass.

Cupping, an almost obsolete remedial measure designed to relieve inflammation by blood-letting. In dry-C. the blood is withdrawn from deep-seated regions to the surface. In wet-C. the blood is withdrawn from the body through a number of incisions made by a special instrument. The apparatus used is a glass cup with rounded or roughened edges, designed to adhere to the skin. The glass is heated by being warmed in a flame or by burning spirit within it. It is applied while hot and the subsequent cooling causes a contraction of the contained air which so diminishes the surface pressure that the blood is quickly drawn from the lower vessels to the skin.

Cupressus, see CYPRESS.

Cura, or Ciudad de Cura, a tn. 56 m. S.W. by W. of Caracas, in the N. of the prov. of Aragua in Venezuela, S. America. The town has a cotton industry, but was almost destroyed by the earthquake of 1900.

Curacao, an esteemed liqueur, manufactured chiefly in Holland. In dry C. there is 39 per cent., in the sweet variety 36 per cent. of alcohol. Jamaica rum is sometimes added to improve the flavour, but the latter depends mostly on the dried peel of the C. orange. A portion of the peel, after maceration in water, is distilled with diluted spirit, the rest of the peel being softened in a part of the distillate so obtained. After forty-eight

hours the infusion strained off from this latter part of the distillate is mixed with that part of the first distillate hitherto unused. The resulting liqueur may be sweetened.

Curacao, or **Curacao**, the most important of the Dutch W. Indian Islands. It lies 40 m. from the N. coast of Venezuela, is 40 m. long by 10 m. wide, and has a total area of 212 sq. m. The soil is largely unproductive; sugar, aloes, tobacco, divi-divi are cultivated in some fertile tracts, and salt, phosphates, cattle, and straw hats are exported. C. liqueur was originally made here from a peculiar variety of orange (*Citrus Aurantium curassaviensis*). Willemstad (pop. 15,775), on the harbour of St. Anna, is the capital not only of C., but of the neighbouring islands of Aruba (pop. 9591), Bonaire (pop. 4926), and also St. Eustatius, Saba, and the Dutch part of St. Martin. C. was discovered by Spain in 1527, but has been held by the Dutch since 1634, except for a short interval when it fell into the hands of Great Britain. Pop. of C. 34,580; of the Dutch W. Indies, 56,500.

Curare, **Curara**, or **Curari**, a vegetable extract obtained from *Paullinia curare* and members of the *Strychnos* family. It is used by the natives of S. America as an arrow poison. Its active principle is curarin, and it has been used hypodermically in hydrophobia and tetanus. It is a dangerous drug, causing paralysis of the motor nerves and eventually death through paralysis of the respiratory organs.

Curassow, or **Cracinae**, a sub-family of the galliform birds, is common to the forests of tropical America. The species are handsome game-birds, and often easily domesticated. *Craz alector*, the crested C., bears on its head a curious crest of feathers movable at will of their owner.

Curate (from the Lat. *curare*, to care for), a word which has become considerably altered in meaning with the passing of old customs. In former times benefices were sometimes handed over to religious houses who, in their turn, might transfer them to laymen. Such members of the laity were styled impropiators and were obliged to apply for a licence of the ordinary to allow a clerk in holy orders to take over the cure or parish in question. These clerks were called 'perpetual Cs.' because the impropiators could not remove them, but by an Act of Parliament of 1868 all 'perpetual Cs.' were allowed to use the title of vicar, even although they were given no vicarage nor tithes. On the Continent (*cf.* Fr. *curé*, It. *curato*, etc.), the word corresponding to

C. is still used of the parish priest. C. is, in its etymological sense, 'one who has the care of souls,' and the word is so used in the Church of England Prayer-book: 'all bishops and curates and congregations committed to their charge'; a curacy is the office held by a C. The word is now restricted in general use to an unbenedicted parochial Church of England clergyman, who is in reality an 'assistant C.' Cs. in earlier times were generally deputies for some incumbent who never visited his parish, now they are ministers employed by the rector or vicar of a parish to assist in parochial work generally, and in taking the service at the parish church. The bishop of the diocese, or an ordinary having episcopal jurisdiction, licences and admits the C. to his parish, and assesses the amount of his salary. If a C. is not inducted to his curacy in due course he is liable to receive six months' notice from his vicar. The incumbent in a parish where the tithes are impropriated and no vicarage has ever been endowed is called a perpetual C.; in such a case he is not removable, and the impropriators are under the necessity of maintaining him. Where new parishes are formed in a district such incumbents are now called vicars.

Curator (Lat. *curator*, one who has charge of a thing—a guardian), in Roman law, the guardian or caretaker of a person over age who for some reason—for instance, if he be a spendthrift or of unsound mind—is unable to take charge of his own affairs. In civil law a C. is the guardian or caretaker of the property of a minor. Under the Roman empire the title was given to those who occupied public official positions of trust. In modern times the name is generally given to the caretaker of a museum or public gallery, but it is still retained with something of its old significance at the universities.

Curb, the term used in masonry to describe any fence or wall, designed to keep a mass of earth in its place. It is applied to various enclosing borders, being originally limited, as the word itself suggests (curb from Lat. *curvus*, crooked) to the framework or border of something circular. Thus it is still used of the framing round the top of a brewer's copper, of the cylindrical ring of iron or wood forming the foundation of a brick shaft, and of the wall or 'coaming' round the top of a well. But its most common application is to the stone or other durable material placed edge-wise along a sidewalk to separate it from the road, and to form a finish to the path or pavement.

Curci, Carlo Maria (1809-91), an It. theological writer, became a priest of the Order of Jesuits in 1837. At Naples, where he had a cure, and where also he was rector of the schools and visited the prisons, he came into contact with Gioberti and other advanced religious thinkers, and in 1847 wrote a spirited reply to Gioberti's *Il Gesuita moderno*. In 1877 Leo XIII. expelled him from his Order in consequence of a pamphlet in which he advocated the reconciliation of the papacy with the people. He was to some extent reconciled; but his two books *La Nuova Italia* (1881) and *Il Vaticano Regio* (1883) were, upon publication, placed on the Index. Towards the end of his life he retracted again.

Curcuma, a genus of Zingiberaceæ. *C. angustifolia* is a native of the forests of India and *C. leucorrhiza* grows in the forests of Bahar. From the tubers of both species E. Indian arrowroot is obtained. *C. longa*, the common turmeric, is cultivated all over India, and also very largely in China; the Chinese sort is most esteemed for its superior richness in colouring matter. The rhizome of this plant is dried and then ground, when it yields the yellow dye known as turmeric. *C. Zedoaria*, the broad-leaved turmeric, has aromatic tubers used by the Hindus as a stimulating condiment, as a medicine, and as a perfume. Colic, cramp, and torpor are some of the diseases it alleviates in the East.

Curel, François Vicomte de (1854-1928), a Fr. dramatist, was educated as a civil engineer at the École Centrale. But he early turned to literature, and his first accepted play was *La Figurante* (1890). *La Nouvelle Idole* (1899), in which C. presents the eternal conflict between faith and reason, is probably his most popular play; but *Le Repas du lion* (1898) and *La Fille sauvage* (1902) are finer. The latter is a symbolical picture of the religious evolution of humanity; the former deals with the struggle, within an individual, between progressive and conservative instincts. Other plays are *Les Fossiles* (1892) and *Le Coup d'aile* (1906). In 1914 he issued an edition of his plays with a preface to each. He became a member of the Academy in 1918. He produced two plays after the war: *Terre inhumaine*, 1923; and *La Viteuse et le Moribond*, 1926. C. was passionately fond of hunting and solitude.

Curepipe, a favourite and fashionable residential quarter, connected by rail with Port Louis, and situated at an elevation of some 1850 ft. in the interior of the island of Mauritius, Pop. 11,300.

Cures, the birthplace of Numa, was a Sabine city, 25 m. from Rome, on the l. b. of the Tiber. It was probably destroyed by the Lombards in 589 A.D., but the site remains, namely a hill with two peaks, which were crowned formerly by the citadel and necropolis respectively. It was from C., so the story goes, that Titus Tatius led to the Quirinal the Sabines, with whom the Romans in time coalesced to form the Quirites.

Curetes, the protectors of Zeus and Rhea, his mother, on the Is. of Crete, whither they had fled from the wrath of Cronus, the father. In historical times they were regarded as gods, and their worship was celebrated in Greece with Pyrrhic dances.

Cureton, William (1808-64), a Syriac scholar. Sub-librarian at the Bodleian, he was in 1837 appointed assistant keeper of MSS. in the Br. Museum. His most famous work was the discovery and translation of a Syriac MS., found in the desert of Nitra, near Cairo, containing what its translator believed to be the only authentic epistles of Ignatius. However, this view is now generally discredited.

Curetus, a tribe of S. American Indians who dwell peaceably in villages, each under a chief. They live in thatched round huts with tall conical roofs in the country bounded by the rivers Vaupés and Japura of north-western Brazil.

Curfew (Fr. *couvre-feu*). The custom of ringing a bell at sunset in summer and at eight o'clock in winter to warn all householders to extinguish their lights and fires was introduced into England from the Continent by William the Conqueror. It was not a tyrannical decree, but was a caution against leaving fires burning at a time when all houses were built of wood. The formal practice of ringing a bell at a stated hour is still continued in some districts.

Curia Muria Islands, *see* KURIA MURIA.

Curia Romana, the name used to denote the collective judicial and administrative institutions by means of which the pope carries on the general government of the church. It is also used in a secondary sense, to mean either the persons who form part of the general government of the Church or the Holy See itself. There is no separation of powers in the C. R., each department, besides performing the business entrusted to it, having a share in the legislative, judicial, and administrative power. All departments derive their powers directly from the pope, and exercise them in the papal name, while the pope is responsible officially for all the

acts of the C. R. The decisions of some departments must in nearly every case be referred to the pope for his ratification, but there is not the same necessity for ratification in others. Acts performed directly by departmental heads are generally called Acts of the Holy See, while those of the pope himself are designated Pontifical Acts, *e.g.* bulls, briefs (*q.v.*), and encyclicals. In all cases, however, the disciplinary authority is the same, though Acts which concern individuals have not the force of general law.

The component parts of the C. R. are (1) the tribunal and offices, and (2) the permanent commissions of cardinals, known as the Roman Congregations. The former have been in existence for centuries, but the latter, though of much later institution, have taken precedence, and now perform a great many of the transactions formerly in the jurisdiction of the former. The Congregations consist of the highest dignitaries of the church, and are practically subdivisions of the Consistory, in which latter council the entire Sacred College takes part. The old machinery of the ecclesiastical administration of the tribunals and offices still exists, but the prelates who once were at the heads of these departments have been replaced by cardinals. The tribunals are: (1) the *forum internum*, the Penitentiary, (2) the Rota (*forum externum*), and (3) the Papal Signatura, the two latter being for judicial matters.

The offices are: (1) the Chancery which sends out papal bulls, (2) the Apostolic Dataria, which transact matters of grace, like nominations to benefices; (3) the Apostolic Chamber, which administers the property of the Holy See; (4) the Palatine Secretaries, the chief of which, the Cardinal Secretary of State, deals with the political affairs of the church; (5) the Pontifical Family, or domestic prelates of the household, one of whom presides over the arrangement of audiences, while another revises books published at Rome; and (6) the Pontifical Chapel, or papal court for religious worship.

Curico: (1) formerly a central province of Chile, stretching from Argentina to the Pacific, and separating the provinces of Talca and Colchagua. Except for salt deposits on the coast the other minerals, copper, silver, etc., are as yet undeveloped. Irrigation has greatly assisted agriculture, and wheat, Indian corn, and the vine are widely cultivated. Since 1927 C. has formed part of the Prov. of Talca. (2) A tn. situated on the Mataquito R.,

114 m. S. of Santiago by the Chilean Central line. Pop. 15,000.

Curie, Marya (Skłodowska), physicist and chemist, was b. Nov 7, 1867, in Warsaw, daughter of Professor Skłodowski. Educated at the Lyceum of Warsaw; went to Paris and studied with Pierre Curie (*q.v.*), whom she married in 1895. It was she who carried out the many experiments necessary to obtain the atomic weight of radium, the element they had jointly discovered. She became licentiate in physics and mathematics, then Doctor of Science, and succeeded her late husband as professor of



MADAME CURIE

physics and director of the physical laboratory at the Sorbonne in 1906. Besides the honours gained in common with her husband, she obtained the medal of the Royal Society of Arts (England) in 1910, and the Nobel Prize for chemistry in 1911. She visited the U.S.A. and her admirers there raised a fund with which they purchased a considerable portion of radium so that she could more easily carry on her investigations. Publications: *Recherches sur la Propriété magnétique des Aciers trempés; Recherches sur les Substances Radioactives*, 2nd ed. 1904; *Traité de Radioactivité*, 1910; *Les Progrès de la Physique Moléculaire*, 1914; *La Radiologie de la Guerre* 1921; *Radioactivité et Phénomènes Connexes*, 1923; *L'Isotopie et les Éléments Isotopes*, 1924; *Pierre Curie*, 1924.

Curie, Pierre (1859-1906), a Fr. physicist, was educated at the Sor-

bonne, Paris, where he eventually became *Licencé* *ès Sciences Physiques*, et *Docteur* *ès Sciences*, and where also from 1900 he held the chair of physics. In time he was chosen as *chef des travaux* at the school of physics and chemistry in Paris, and in 1895 was appointed professor at the same institution. In his earlier years he carried on some valuable research into piezo-electricity and the magnetic properties exercised by bodies in different degrees of heat. But his greatest service in the field of science was the discovery of two new elements, polonium and radium. Already, in 1896, Henri Becquerel had published his observations on the radio-activity of uranium—a property manifested in a still higher degree by the compound known as pitchblende. Monsieur and Madame C. (*see* CURIE, MARYA)—for his wife took a full and equal share in the whole of C.'s laboratory work—immediately began to subject pitchblende to fractionation, hoping, thereby, to bring to light some hitherto unknown substance which must be radio-active to a still greater extent than uranium. Their hopes were fully realised, and resulted in the discovery of radium and its transformation product, polonium. In 1903 the Cs. received the Davy medal of the Royal Society and also half of the Nobel prize for physics, the other part being awarded to Becquerel. A year after his election to the Academy of Sciences (1905), C. was killed by a dray which ran over him. His investigations were regularly published in the *Journal of Physics*, *Annals of Physics and Chemistry*, and other scientific records.

Curio, Gaius Scribonius : 1. A Roman statesman who lived in the first century B.C. Consul in 76, he prosecuted a successful war against the Thracians in his capacity of governor of Macedonia, and was the first Roman to reach the Danube. 2. Son of the above, transferred his allegiance from Pompey to Caesar during his tribuneship of 59 B.C. After mustering troops for Caesar in Umbria and Etruria, he more than held his own against the Pompeians in Sicily (49), and was finally slain by Juba, the Numidian king, whilst crushing the Republican cause in Africa.

Curisches Haff, or Kurische Haff, a bay or backwater of the Baltic Sea in Eastern Prussia. It extends along the coast S. of Memel for more than 50 m., and is separated from the open sea by the Curische Nehrung, a narrow sandy ridge. At the N., it opens into the sea by a channel called Memel Deep.

Curityba, or Curitiba, the cap. of

the state of Parana, Brazil. Situated on a pleasant plateau, 2916 ft. above the sea, it is watered by the Iguacu, an affluent of the Parana, and is connected by rail with its seaport, Paranagua, 68 m. to the east. There is a university and a large German colony. Its staple exports are maté or Paraguayan tea, beef, cereals, and tobacco. Pop. 80,000.

Curlew, shore bird of the genus *Numenius*. It is found in all countries, and is remarkable for its very long and decurved bill, and its elongated legs. It breeds especially on moorlands, the nest being quite exposed. The plumage is pale brown in colour, with dark bars, the under and lower parts being mainly white. It is found on British shores from autumn to spring, and feeds on insects, worms, and berries.

38 yds. apart, one at each end of the rink. With the tee as centre, a circle of 7 ft. radius is then drawn at each end. Behind each tee a line is drawn back from the tee to a distance of 4 ft., these being called the *central lines*. At the hinder extremity of the central lines *foot-scores* are drawn at right angles to them, 18 in. long, on the left hand of the central line as one faces the tee. With part of the foot-score as diameter and with their centres 6 in. from the central line, small circles 3 in. in radius are drawn. On these, players must place their left feet when casting their stones. Those stones which are inside the tee circle and nearest to the tee count for the score, and a game consists of a number of 'heads' or 'ends,' after each of which the players change ends. Seven yards



CURLING IN SWITZERLAND

[The Times

Curling, a kind of bowls on the ice, which has been a popular Scottish sport during the last three centuries and which has now found a home in most parts of the world where the climate is favourable, especially Canada. The stone, which takes the place of the bowl, is a block of granite or whinstone rounded to the shape of a Dutch cheese and polished smooth. On the top is an iron handle by which the player grips it. The stone may be thrown in various ways, according to the direction in which the player wishes to send it. The weight varies from 35 to 40 lb., but 44 lb. is the maximum allowed. By giving it a rotary motion to a greater or less degree it may be made to go in more or less of a curve. The first thing done by the players is to prepare the rink. The ice is swept clean and two tees are constructed,

from each tee a wavy line is drawn, known as the hog-score, and any stone which does not cross this is called a *hog* and removed from the rink. Midway between the tees a straight *middle* line is drawn. The rink having been prepared according to the above rules each side chooses its *skip* or captain. A side generally consists of four players with two stones apiece, and the skip is an automatic director, giving minute direction to the other players where they must send their stones. The leader is generally directed by his skip to send his stone straight towards the tee, but on no account to go beyond it. The skip of the opposing side may then direct his first player either to send down a shot to remove his adversary's stone, or to try to get his own stone nearer. The second and third players are similarly told exactly what to do.

The skip generally plays last, though this is not obligatory, and he himself is directed by a player, generally the third, whom he has picked out for this purpose. As a rule, when one good shot has been made it is customary for the following players to be directed to lay their stones as *guards* to protect this one. All the players are provided with brooms and a right judgment in 'scooping' (sweeping) forms no small part of the skill of the game. The broom is used to sweep away any particles of ice or snow that seem likely to impede the progress of the stone, and is used only on the skip's orders. The player's party may sweep from the middle line to the tee, so long as they do not disturb either the running stone or any of those at rest. An umpire is generally chosen to settle disputed points. The rules for C. are made and issued by the Royal Caledonian Curling Club. Much effort has been exerted to find the origin of the game, but it seems impossible finally to settle this point. The balance of opinion inclines to give it a Dutch or Flemish origin. There are many references to the game in the early seventeenth-century Scottish records. Camden, in 1607, speaking of the Orkney Islands, says, that they supply 'plenty of excellent stones for the game called C.' The game at first bore a much closer resemblance to quoits than it at present does. It was for a long time known as *coiting* or *kuting*, and the old name still survives in many parts. At this time the stones were much smaller, weighing only a few pounds, and the impulse was given by the fingers, to receive which a small hole was made in the top of the stone. Then for a short time the stones were of enormous weight, 70 or 80 lb. each, and shaping was not carefully attended to. With an increase in the symmetry of the stones came a decrease in their size. In 1834 an attempt to revive the ancient sport was made by the Amateur Curling Club of Scotland, attended with but little success. In 1838 the Grand Caledonian Curling Club was formed on more professional lines, and this club, which took the title of 'Royal,' from Queen Victoria in 1842, extended the game to Canada and the U.S.A., where it is played under slightly different conditions.

Curll, Edmund (1675-1747), a notorious London bookseller, *b.* in London. He is responsible for the origin of the word Curllicism, having achieved a reputation for issuing obscene literature. He lived chiefly by piratical publishing, and Arbuthnot said of his biographies that they added a new terror to death. He

quarrelled with Alexander Pope, the poet, in 1716, in consequence of which Pope pilloried him in his work, the *Dunciad*.

Curragh Incident.—The name by which that dramatic and unexpected gesture made at Curragh Camp by General Hubert Gough and other officers under his command came to be known. On March 20, 1914, they tendered their resignations as a protest against the likelihood of being sent to enforce Home Rule upon N.E. Ulster. This action caused a political crisis of the first order. (*See also HOME RULE.*)

Curran, John Philpot (1750-1817), an Irish judge and orator, won in 1769 a sizarship at Trinity College, Dublin. He was called to the Irish Bar in 1775, and in 1782 he was created king's counsel, and in the following year entered the Irish Parliament as member for Kilbeggan. A staunch supporter of Grattan, his fervid and sarcastic speech nevertheless failed to secure for him in the House that pre-eminence which he enjoyed in an Irish court. C. was a convinced Protestant, but when the oppressed Catholics of his country were goaded at length to open rebellion, he threw himself whole-heartedly into the defence of their leaders in the series of state trials which followed. Thus he exerted himself to save Archibald Rowan (1794), the Rev. William Jackson (1795), Peter Finnerty (1797), the brothers Sheares (1798), Napper Tandy (1800), and a host of other victims of government persecution. C.'s last years were darkened alike by the political outlook and by domestic troubles. The union, which he had prophesied would be 'the annihilation of Ireland,' was in the last degree abhorrent to him: his wife eloped with a clergyman, and Sarah, his daughter, died in Sicily after the execution of her lover, Robert Emmet, who rebelled in 1803. From 1806-14 C. served the Whig government as Master of the Rolls in Ireland.

Currant, a term applied properly to species of *Ribes*, a genus of Saxifragaceæ which flourishes in N. lands and has four representatives in Britain. *R. rubrum* is the red C., a plant remarkable for the mixture of sweetness and acidity in its fruit and for the beauty of its semi-transparent red or yellow berries. *R. Nigrum* is the black C., in the fruit of which a powerful and agreeable aromatic principle takes the place of acidity. *R. sanguineum*, the flowering C., is well known in British shrubberies for its beautiful pendant racemes of flowers, which are white when very young, and gradually become

rose-coloured. The Cs. sold in grocer's shops are the dried berries of a small kind of grape which is cultivated chiefly in the islands of the Mediterranean and in Corinth, the word C. being a corruption of the name of this town. Various plants of different genera and orders are named C.-trees and C.-bushes, but they bear no true resemblance to species of *Ribes*.



FLOWERING CURRANT
(*Ribes sanguineum*)

Currant Wine, an inferior vintage made from a seedless variety of the *Vitis vinifera*, or grape-vine, which is cultivated chiefly in Zante, Cephalonia, and Ithaca, and near Patras in the Morea. The fruit is grown on the lower hills and in the valleys, the higher slopes being left for the cultivation of the grape-vine.

Currency (Money), that which is current or in circulation, as a medium of trade. The word is generally applied to coins and what is termed paper money, comprising bills issued by authority, and to bank-notes or notes issued by government. In the science of political economy it more properly connotes money in the sense of coin, bills of exchange, notes, or other paper substitutes, being no more than a means of economising the amount of coin or bullion in any country. Money in this more restricted sense may be defined as the means by which two persons who do not deal

together mutually as producers and consumers are enabled to enter into transactions. Some common measure of value must necessarily be adopted as an essential part of the machinery of trade, or, in the language of economists, for the purpose of facilitating exchanges. Various substances have been used in different countries to serve as money, e.g. the Chinese formerly used cubes of tea and ancient classic nations used cattle. But as the precious metals, gold and silver, and in a lesser degree copper, have been for long the universal substances selected for the purpose by reason of the possession of their qualities of intrinsic value, durability, susceptibility to division, and portability, it is unnecessary to consider any other kinds. Besides acting as a medium of exchange, money performs the no less essential functions of serving as the measure of the value of all other substances and as a means for effecting credit (*q.v.*). An appreciation of the true use of money and, in Adam Smith's phrase, of its nature as merely 'a branch of the general stock,' has led to the rejection of the old fallacy that a country's wealth was in direct proportion to the amount of money in the country, a fallacy which resulted from a confusion of *capital* with *money*. The former policy of the laws and trade of Great Britain was to retain as much money as possible, and hence to discourage imports and encourage exports (*see* CAPITAL, CUSTOMS DUTIES, and FREE TRADE). As a general rule it may be said that the value of money, that is to say, its purchasing power, varies inversely as general prices (Mill). The complex industrial organism of a country cannot be properly carried on unless there is at any given time an adequate quantity of money in that country. What is the proportion which the circulating money of any country bears to the whole value of the annual produce circulated by means of it, it is impossible to determine. The point is a controversial one, but as only a part, and frequently a small part, of the annual produce is destined for the maintenance of industry, it must always bear a very considerable proportion to that part (Adam Smith). The problem appears in the opinion of modern economists not to be capable of an answer in exact figures, owing to the difficulty of deciding the causes which determine the value of money. The value of money is regulated by the same laws as those which determine the value of other mineral produce: hence the causes which determine that value are, though complicated, reducible to the law of supply and demand.

'Supply' of money means, according to Mill, the total amount of money in circulation at any given time, and 'demand' for money the total quantity of goods offered for sale. But as Mill points out, the element or factor of supply is itself complicated by the varying rates of circulation; or what he terms the 'efficiency' of money. Furthermore, demand in this context is to be taken to indicate not so much the total quantity of commodities as the number of sales to which any particular article is subject before it ultimately gets to the hands of the consumer. The net result is that the value of money varies inversely as its total amount in circulation multiplied by its efficiency (Cairnes). As men economise to the fullest possible extent the machinery of production, so do they economise as far as they can the machinery of exchange, or money. If actual money in the primary signification of current coin passed on every mercantile transaction, the trouble and difficulties of the social organism would be enormously increased; in all probability it could not be carried on at all as at present constituted. In a word, some system of credit has to be adopted (*see CREDIT*), and as a corollary, civilised communities attain to the idea of what is known variously as paper money or representative money in the shape of bank-notes, promissory notes, and bills of exchange (which latter term legally comprises cheques). These paper instruments are therefore a substitute for money. In most modern countries that form of promissory note known as a bank-note is part of the ordinary C. Notes are made legal tender provided they are issued by the state or by a state bank. When once in circulation such notes discharge debts as completely as current coin, in spite of fluctuations in value; Promissory notes issued by bankers may of course be refused as payment of a debt, and can only be circulated with the entire concurrence of those who receive them. Bank of England notes have now long been legal C. and tender, and under certain circumstances the notes of country banks may be treated as C. and payment. A bank must always give gold or Bank of England notes, on demand, in exchange for its own notes. These rules give rise to the assertion that in the United Kingdom there is a 'convertible paper C.' Where notes are not convertible into money on demand, they are what is called 'inconvertible C.' The danger of inconvertible paper C. is that there is no real limit to the issue, with the result that there may be a poor prospect of redeeming the

notes, and such huge sums may therefore by their means be added to the C. as to exercise a prejudicial influence on the financial resources of a country and ultimately to injure the credit of a government. Gold coins are valid tender up to any amount; silver coins not beyond 40s.; copper coins not over 1s. By a statute passed in the third year of William IV., Bank of England notes are legal tender for all sums above £5, if the notes are payable on demand to bearer. In the United Kingdom there is therefore no 'double' or 'treble' standard of value, although there are three kinds of metal used in coinage; the silver and copper coinages being no more than subsidiary. Advocates of a double standard insist upon the relative value of gold and silver being fixed by international agreement; but the fallacies underlying this proposal, which is commonly known as bi-metallism, may be refuted by consideration of the effect of the cost of production of the precious metals.

The outbreak of the Great War in Aug. 1914 necessitated an early departure from the currency practice which had been established for years in Great Britain. On Aug. 6, 1914, an Act known as the Currency and Bank Notes Act was passed. This Act authorised the Treasury to issue Currency Notes of the value of £1 and 10s. These were to be legal tender for any amount, the holder of a Currency Note being entitled to obtain on demand at the Bank of England, London, payment of the note at its face value in legal tender gold coin. The Act also provided that postal orders were to be temporary legal tender for the payment of any amount and these were actually used as currency for a short period. The provision with regard to postal orders was revoked by proclamation as from Feb. 3, 1915. Another very important provision of the Act was the power given to the Bank of England and to any Irish or Scottish Bank to issue notes in excess of the limits fixed by the law. The proviso attaching to these excess issues was that they should be authorised by H.M. Treasury and subject to any conditions imposed by that authority. It is important to note that Banks of issue were to be indemnified against liability on account of excess issue after Aug. 1, 1914, provided that such excess resulted from authority received from the Treasury. It is a noteworthy fact that for a very short period the Bank of England did exceed the issue limit of uncovered notes fixed by the Act of 1844. Currency Notes were obtainable

by bankers from the Bank of England up to 20 per cent. of their liability on deposit and current accounts. The first issue of Currency Notes by the Treasury was made on Aug. 7, 1914, and the value of outstanding issues grew rapidly until Aug. 4, 1920, when the figure against outstanding Currency Notes and Currency Note Certificates was returned at £366,679,828. It should be stated here, perhaps, that the holder of Currency Note Certificates is entitled to demand from the Bank of England, acting for the Treasury, the amount of Currency Notes stated thereon. The great utility of the Currency Note issue was made manifest during the period 1914-1918 covered by the Great War, when the national finances had to be treated with marked care. The banks were able to meet continuous and increasing demands for currency by the public. The Bank of England was enabled to conserve the Gold stocks in the country. Credit was extended and this led to inflation. The gov. found the issue of Currency Notes of the greatest use, inasmuch as it was provided with a loan of nearly 400 million pounds to help to carry on the War. In Jan. 1918 a Committee known as the Cunliffe Committee was appointed under the chairmanship of Lord Cunliffe to consider the various problems which would arise in connection with C. and the foreign exchanges during the period of reconstruction and report on the steps required to bring about the restoration of normal conditions in due course. These terms of reference were later amplified by the addition of the following: 'and to consider the working of the Bank Act, 1844, and the constitution and functions of the Bank of England with a view to recommending any alterations which may appear to them to be necessary or desirable.' Among the principal recommendations of this committee were that an early return should be made to the Gold Standard and that gov. borrowings should cease at the earliest possible moment. It was also advocated that an adequate sinking fund should be provided out of revenue, so that there might be a regular annual reduction of capital liabilities. The important recommendation was made that in order to reduce the Currency Note issue the actual maximum fiduciary circulation in any year should become the legal maximum for the following year. The committee also recommended that the principle of the Bank Charter Act, 1844, should be maintained, namely, that there should be a fixed fiduciary issue beyond which

notes should only be issued in exchange for gold.

U.S.A.—Prior to the issue of coins by the gov., sacks of flour, gold dust, tobacco, and wampum skins were used for money. This C. proving cumbersome, a private coinage was introduced which, although not legal tender, readily passed from hand to hand. Nearly all the states prior to the Federal Constitution increased the limited coinage issuing from Maryland and other of the more advanced states by the issue of paper money. This money, issued during the struggle for independence from Great Britain, was printed mainly under authorisation of the Continental Congress. It depreciated so much that it was almost valueless. This condition of affairs is enshrined to this day in the saying of Americans that a thing is 'not worth a continental.' An attempt to provide a sound and uniform C. was made by the establishment of a U.S.A. Bank in 1791, which was given up in 1811, and of a second in 1816, which was closed in 1832 owing to President Jackson's opposition. The bimetallic standard (the 'dollar,' without decision as to whether it was to be of gold or silver, having been made the unit) caused speculation in gold and silver coin, and in 1834 the ratio of coinage was changed from 15:1 to 16:1. Between 1837 and 1844 several state banks collapsed and Federal credit was so impaired that payment for land was ordered to be made in specie. Some of the states repudiated their public debts. Radical experiments ensued. An independent U.S.A. Treasury was established in 1846, and also a sub-Treasury. Treasury notes were made receivable for public debts, and selected cities were named as centres of deposit for government funds. In 1861 a panic occurred, specie payments being suspended, and in 1862 Secretary Chase issued legal-tender notes, founded on specie support (greenbacks), though owing to the rise of prices and depreciation of notes specie payment of notes was later suspended. In 1863 the National Bank system was established, a national C. was provided for, secured by U.S.A. bonds, the banks being allowed to issue C. up to 90 per cent. of government bonds deposited. In 1869 occurred the gold panic of Sept. 24 due to the attempt of Jay Gould and others to corner the American gold market. This was foiled when the Government threw five million dollars of gold into the market. The day of the break was known as Black Friday. In 1870-71 Refunding Acts provided that the

bonds be paid in 'coin' and exempt from tax. In 1873, after serious results of speculation in gold, accompanied by a great panic known as second Black Friday, the gold standard was tentatively asserted but between 1876 and 1890 the Bland Bill, providing for the free coinage of silver dollars, loosed a flood of over 300 millions of silver dollars on the country which banks refused to accept, as they also did the silver dollar certificates issued in 1886. To relieve the pressure of silver the Secretary of the Treasury was empowered to purchase them and store them, issuing Treasury notes against them. In 1893, the fall in the value of silver was accelerated by the establishment of the gold standard in India, and after a period of depression a serious political agitation led by W. J. Bryan arose for the re-establishment of a bimetallic standard. In 1900 the Currency Act was passed, definitely making gold the standard, and creating more favourable conditions for national banks. The 1907 panic was followed in 1908 by the Aldrich Currency Bill, allowing banks to issue C. on security of other than government bonds. The Owen-Glass Bill in 1913 (the Federal Reserve Act) passed by Congress under the impulsion of President Wilson was intended to replace the outworn system of the Civil War days. The Federal Reserve Banking system is under the control of a board of seven directors including the Secretary of the Treasury, the Comptroller of the Treasury and five members named by the President of the U.S.A. The term of service is ten years and the salary is 12,000 dollars per annum. Instead of one central bank, there are twelve regional banks, located in important cities scattered all over the country. Each of these banks is itself the centre of a large district. All national banks are required to join the system, and each has to subscribe for the stock in the regional bank of its district to the amount of 6 per cent. of its own capital stock and surplus. Banks holding state and not Federal charters may join, but are not compelled to do so. Each regional reserve bank is under control of nine directors, under orders from the central Board of seven, whose headquarters are in Washington. Each regional bank is supplied with large Gov. deposits and with its own very considerable reserves. At all times it can supply its member banks with all the money that is needed, especially in crop-moving time. The regional bank makes loans to the member banks

on good security. These regional banks also issue paper money in the shape of Federal Reserve treasury notes which are legal tender. Their redemption is amply provided for. The issue of these notes expands when the business need is greatest and contracts when the emergency ceases. The object of President Wilson was to place the money power in the hands of the Gov. itself and take it away from the Wall Street bankers, who had hitherto controlled the money market, taking advantage of the business interests of the country by exacting high rates of interest. The system showed its great value when the U.S.A. entered the Great War and the Gov. was compelled to borrow huge sums from the people. The plan worked without a hitch. The great panic and business depression of the winter of 1929-30 which extended into 1931 was not caused by any fault in the Federal Reserve act, but by the huge stock speculation in which the American public had indulged, by over-production of manufactured goods, and by general bad economic conditions throughout the world.

Currency Bonds, government bonds of the U.S.A., which are so called because they form part of the circulatory system of exchange. This they do in virtue of their interchangeability with the notes of the national banks, as a security for which they are deposited by the government with the treasury.

Currents, Oceanic, *see* ARCTIC, ATLANTIC, INDIAN, and PACIFIC OCEANS; and GULF STREAM.

Currie, Sir Donald (1825-1909), the founder of the Castle Steamship Company, born at Greenock. At the age of fourteen he entered a shipping-office, and in 1844 joined the Cunard Steamship Company in Liverpool. The 'Castle' line, which he established in 1862, rapidly grew in importance, and in 1872 he started a line of steamers to Cape Town, thus breaking the monopoly held by the Union Steamship Company. These two companies were amalgamated in 1900 as the Union-Castle Mail Steamship Company, with Sir Donald as chairman.

Currie, Sir William Arthur, Canadian General, b. at Napperton, Ontario, Canada, in 1875. He quickly came to the fore in the Great War, and proved himself an able administrator as well as general. He early took the field in command of the 1st Canadian Division in 1914, and then of the Canadian Corps in 1917. His many military decorations include the Legion of Honour, Grand

Officier de l'Ordre de la Couronne de Belgique, the French and Belgian Croix de Guerre and American Distinguished Service Medal. Principal of McGill University since 1920.

Curry, an Indian dish, seasoned with C. powder or paste. C. is a concoction of pepper, ginger, turmeric, coriander, caraway, tamarind, and many spices.

Cursor Mundi, a fourteenth-century verse homily, purposing to give a history of the world from its creation to its ultimate destruction. The poem is based on Bible history, but, in a very attractive manner, the author incorporates with the scriptural narrative any legendary story he may know, such as that of the *Three Trees*. He also owes probably something to Caedmon's *Genesis*. Grosseteste's *Castile of Love*, and to the works of Wace and of Isidore of Seville. See the edition of Dr. Morris, published by the Early English Text Society.

Curtain, a term used in fortification with regard to the part of a rampart which connects one bastion with another. See BASTION.

Curtatone, a com. of Northern Italy, in Lombardy, 4 m. W. of Mantua. It was the scene of the defeat of the Italian patriots by the Austrians on Aug. 29, 1848. Pop. 8610.

Curtea de Arges, a tn. and Episcopal see of Rumania, in Wallachia, on the R. Arges, a tributary of the Danube. The fine cathedral, dating from the sixteenth century, is of great interest. There are several fine churches, including one built in 1512 by Prince Neagoe in the Byzantine style. Pop. 6500.

Curtsey (also Courtesy). The right of a husband to enjoy for life, after his wife's death, the freehold lands of which his wife was solely *seised* (i.e. possessed) in her lifetime, provided such issue of the marriage was born as might by possibility inherit as the heir of the wife, made the husband on the right accruing *tenant by the curtesy* of England. Since the passing of the Married Women's Property Act, 1882, tenancy by the C. only attaches to lands of which the wife dies intestate. C. of Scotland, or 'right of courtship,' is substantially similar. But the child born, or 'inheritable issue,' must have been heard to cry, for in Scotland crying is the only legal evidence of life.

Curtsey of England (i.e. *per legem Angliae*), in Eng. real property law, the tenure a man had of his wife's land, provided she were *seised* of the land when he married her and provided he had heritable issue by her born alive. Land may be subject to C. of E., or, in other

words, to the widower's life estate in the whole of the wife's *freeholds of inheritance to possession, legal or equitable*, and not in joint tenancy (q.v.). The condition as to heritable issue being actually born alive is not necessary in gavelkind (q.v.) and, further, the widower's life estate is that tenure is only one-half and only subsists till re-marriage. Since the Married Women's Property Act, 1882, tenure by C. of E. attaches only to lands of which the wife dies intestate. A tenant by curtesy has the powers of a tenant-for-life under the Settled Land Acts. There is no Curtesy by 'General Custom' in Copyholds. An estate of C. may be registered to the Land Registry under the Land Transfer Acts and, if so registered, is an 'encumbrance.'

Curtin, Andrew Gregg (1817-94), an American statesman, b. at Bellefonte, Pa.; was secretary to the Commonwealth of Penna. in 1853, and governor (Republican) 1860. During the Civil War he strongly supported Lincoln, and Pa., under C., furnished 390,000 men to the Northern army.

Curtis, Charles, Vice-President of the U.S.A. b. Topeka, Kansas, U.S.A., Jan. 25, 1860. Educated in the common schools of Topeka and studied law there. Admitted to the Bar in 1881. Was elected to Congress in 1892, being re-elected and serving until 1907, when he was elected to the U.S.A. Senate to fill out an unexpired term. He was re-elected and served until 1912. In the meantime, he had become one of the leaders of the Conservative wing of the Republican party in the Senate, and acted as President *pro tempore* of that body for a short time in the winter of 1911. Again elected to the Senate in 1914 and re-elected in 1920 and 1926. Was a candidate for the Presidential nomination of his party in 1928, but when Herbert Hoover was named for the head of the ticket, accepted nomination for Vice-President and was elected in Nov. 1928 for a term of four years. His maternal grandmother was half French and half Indian of the Kaw tribe. Has always been proud of his Indian blood and upbringing and his features are markedly Indian.

Curtis, Charles Gordon, American inventor; b. in Boston, Mass., 1860; son of Geo. Ticknor C. For eight years a patent-lawyer. He organised the C. & C. Electric Motor Co., the first company to make electric fans and motors; also the Curtis Manufacturing Co., of which he was president. Inventor of the Curtis improved steam turbine, of which

the land rights were sold to the General Electric Co., and which is used in the navies of U.S.A. and Great Britain. Member of the Society of Naval Architects and Marine Engineers.

Curtis, Cyrus Hermann Kotzschmar, American publisher; *b.* in Portland, Me., 1850; son of Cyrus L. Curtis. Had a common school education in New England. When married, went in 1876 to Philadelphia; there published the *Tribune and Farmer*, and established the *Ladies' Home Journal*. Later he became head of the Curtis Publishing Co., and *The Country Gentleman* and *The Saturday Evening Post*, the latter of which had been founded in 1728 by Benjamin Franklin, became the property of his firm. In Jan. 1913 he acquired the *Philadelphia Public Ledger* (owned by A. S. Ochs from 1902 to 1912), and in Dec. 1923 *New York Evening Post*. The head offices are in Independence Square, Philadelphia.

Curtis, George Ticknor (1812-94), an American lawyer and historian, *b.* in Watertown, Mass.; graduated at Harvard in 1832; admitted to the Bar, 1836; practised in Worcester, Boston, New York, and Washington, appearing before the U.S. Supreme Court in the Dred Scott case. He wrote: *A History . . . of the Constitution of the United States*, 1854; republished with embellishments as *Constitutional History of the United States*, 1889-96; *Life of Daniel Webster*, 1870, and other political biographies. His brother, *Benjamin Robbins Curtis* (1809-74), an eminent jurist, was *b.* in Watertown, Mass.; graduated at Harvard, 1829; practised law at Boston, and was eventually appointed to the Supreme Court, where in 1857 he gave a dissenting opinion in the Dred Scott case (*q.v.*). In 1868 (having previously resigned from the Supreme Court) he was counsel for President Andrew Johnson in his impeachment trial.

Curtis, George William (1824-92), an American man of letters, *b.* in Providence, Rhode Island. He began life as a clerk in New York, and after having spent over a year with the Brook Farm Community, W. Roxbury (1842), he travelled on the Continent and in Egypt and Syria. On his return to America in 1850, he published his travels, and soon acquired a reputation. He was appointed editor of *Putnam's Monthly* in 1852, and contributed the series 'The Editor's Easy Chair' to *Harper's Monthly* from 1853. In 1857 he became editor of *Harper's Weekly*, and contributed serially to many magazines. C. was well known as a lec-

turer and public speaker, and was a keen member of the anti-slavery movement. His chief publications are: *Nile Notes of a Howadji*, 1851; *Lotus Eating*, 1852; *Poliphar Papers*, 1853; *Prue and I*, 1856; *Eulogy on Wendell Phillips*, 1884; and *Party and Patronage*, 1890. His *Letters to Dwight* were published in 1893, and his *Orations and Addresses* in 1893-94. Consult his *Life* by Cary in the *American Men of Letters* series, 1894.

Curtis, Lionel, writer on imperial affairs; *b.* 1872; educ. at Haileybury, and at New College, Oxford. Called to Bar; served in S. African War; afterwards Town Clerk of Johannesburg, Assistant Colonial Sec. to Transvaal, and member of Transvaal Legislative Council. Was sec. to Irish Conference, 1921; adviser on Irish affairs at Colonial Office, 1921-24. Beit lecturer on Colonial History, and Fellow of All Souls, Oxford, Hon. Sec. to Royal Institute of International Affairs. Publications: *Dynarchy*, 1920; *The Prevention of War* (with Philip Kerr), 1924. Also edited reports from 'Round Table' groups throughout empire (from *Round Table* quarterly, begun 1910); *The Problem of the Commonwealth*, 1916; and *The Commonwealth of Nations*, part I., 1916.

Curtis Publishing Company, see CURTIS, CYRUS HERMANN KOTZSCHMAR.

Curtis, Sir Roger (1746-1816), a British admiral, *b.* at Downton in Wiltshire. He entered the navy in 1762, and as a lieutenant was sent out to Newfoundland in 1771. In 1771 he served on the flagship under Lord Howe, and in 1780 commanded the *Brilliant* at the siege of Gibraltar. He took part, under Howe, at the action of the 'glorious 1st of June,' 1794, was sent home with the despatches, and in July was raised to the rank of rear-admiral, and was created a baronet. In 1793 he joined Lord St. Vincent at Cadiz, and in the following year became commander-in-chief at the Cape of Good Hope. He was made admiral in 1804, commander-in-chief at Portsmouth in 1809, and G.C.B. in 1815.

Curtius (Quintus Curtius Rufus), a Roman historian who probably lived towards the end of the first century A.D. He wrote a history of Alexander the Great, *Historiæ Alexandri Magni*, in ten books, of which the first two and portions of others are lost. The first edition was published about 1471 at Venice. The best modern editions are: Vogel, 1884, and Dossen, 1887.

Curtius, Ernst (1814-96), a German archaeologist. He became professor of archaeology and philology at Göttingen (1856-63), and of ancient history at Berlin, 1868. C. super-

intended the German excavations at Olympia. His writings include *Peloponnesos* (2 vols.), 1851-52; *Griechische Geschichte* (3 vols.), 1857-67; *Attische Studien*, 1863-64. Consult Brocher, *Erinnerungen an Ernst Curtius*, 1896; Fr. Curtius, *Ernst Curtius, ein Lebensbild*, 1903.

Curtius, Georg (1820-85), a German philologist, brother of Ernst C. His books on comparative philology are standard works on the subject. His chief publications are: *Griechische Schulgrammatik*, 1852; *Grundzüge der Griechischen Etymologie*, 1858-62; *Das Verbum der Griechischen Sprache*, 1873-76.

Curule Chair (Lat. *sella curulis*), the throne or seat of honour of the old Roman kings. Later, dictators, consuls, proctors, curule aediles, and magistrates, with senatorial rank, might use this chair on certain public occasions. It was made like a folding-stool, with curved legs, and was ornamented with gold, silver, or enamel.

Curvature of the Spine, see SPINE.

Curve, a line which is continuously changing its direction. It is described by a point moving under some given conditions, and curves can therefore be denominated and classified by naming those conditions. For instance, a circle is a C. formed by a point moving at a constant distance from a fixed point. Other well-known Cs. are the ellipse, parabola, and hyperbola (*q.v.*), which, when referred to cartesian co-ordinates, involve equations of the second power. If an inelastic thread is made to coincide with a C. and is then uncoiled while being kept tense, its extremity forms a C. which is called the *involute* of the original C. The term *evolute* is applied to the original C. with respect to the involute as given C. In another aspect the evolute may be defined as the locus of the centres of curvature of the given C.

Curves (Special). The properties of a large number both of two-dimensional and three-dimensional curves that are not so familiar as the circle, ellipse, etc., have been investigated in detail, and such curves are included under the title of special curves. The *cycloid* is a very familiar special curve; it is traced out by a point on the rim of a circle (or wheel) rolling along a straight line. Its interest lies in the fact that it is the *brachistochrone* or curve of quickest descent under the action of gravity from one given point to another given point. Again in 1673 Huygens constructed a cycloidal pendulum in which the bob was made to describe a cycloid; such a pendulum has exactly the same period of oscillation for all

amplitudes. Another famous special curve is the *catenary*, or the curve in which a heavy, uniform, perfectly flexible, and inextensible chain would hang when supported at its two ends. The thread of a screw forms the curve known as the *helix*; the *caustic curve* is seen every day when light is reflected by the sides of a tea-cup, while the *sine curve* is of special importance not only in alternating-current engineering, but also in the theory of light and sound. For a discussion of special curves in general, together with their properties, and the manner in which they can best be drawn, the reader is referred to *The Differential Calculus* by J. Edwards (Macmillan).

Curwen, John (1816-80), an English writer on music, b. at Heckmondwike. He developed and improved the 'tonic sol-fa' system, invented by Miss Glover. He founded the Tonic Sol-fa College at Plaistow in Essex (1875), and started a publishing house in London, which brought out his *Tonic Sol-fa Reporter*. His other writings include *Grammar of Vocal Music*, 1843, and *People's Service of Song*, 1850.

Curzola (ancient Corcyra Nigra, Serbo-Croatian Korcula): (1) An island in the Adriatic, forming a part of Dalmatia and belonging to Yugoslavia. Area 100 sq. m. Pop. 28,365. (2) Chief town of the above, on a rocky promontory on the E. coast. A strongly fortified port and an episcopal see. It has an ancient church (once a cathedral) and a Franciscan monastery of the fifteenth century with a superb Venetian-Gothic cloister. C. was ruled by the Venetians from 998 until in the twelfth century it was taken in succession by the Hungarians and Genoans to return to Venice in 1420. During the Napoleonic wars it fell at different times into the hands of the Russians, French, and British, and was ceded to Austria in 1815 and to Yugoslavia after the Great War.

Curzon, George Nathaniel (1st Marquess Curzon of Kedleston) (1859-1925), an English statesman, the eldest son of the 4th Baron Scarsdale. He was b. Jan. 11, 1859, at Kedleston, Derbyshire. Educ. at Balliol College, Oxford. In 1883 he failed to obtain a Balliol scholarship—probably through lack of systematic application. In 1885 he became private secretary of the Marquis of Salisbury. He entered parliament as Conservative member for Southport the following year, and retained his seat till 1898. He was Under-Secretary of State for India (1891-92); and, on the return of Salisbury to office in 1895, he

became Under-Secretary for Foreign Affairs, which appointment he held till 1898. In that year he went out to India, Viceroy and Governor-General, as 1st Baron Curzon of Kedleston in the peerage of Ireland. Lord C. worked with untiring energy for the interests of the natives of India; and, though his tenure of office was completed in Aug. 1903, it was extended in order that he might carry out his schemes for reform. His autocratic disposition was not infrequently the subject of criticism, and in 1905 the partition of Bengal made him unpopular with the natives. In the same year Lord Kitchener, commander-in-chief of



LORD CURZON

the forces, objected to the dual control, civil and military, in the Indian army, and, though his view was opposed by Lord C., the government at home supported Lord Kitchener. This led to Lord C.'s resignation on Aug. 12, 1905. On his return to England, he became a prominent member of the Opposition, under the leadership of Balfour, and afterwards of Bonar Law. He was refused a peerage of the United Kingdom by Campbell-Bannerman. He was elected Chancellor of the Oxford University in 1907, and Lord Rector of Glasgow in 1908. In the latter year he was elected to the House of Lords as an Irish representative peer. He supported the policy of Lord Lansdowne in allowing the Parliament Bill to pass in 1911. In that year he was made Earl Curzon of Kedleston,

Viscount Scarsdale, and Baron Ravensdale. He thus became a peer of the United Kingdom. Early in the Great War he spoke on many platforms in support of recruiting. In May 1915 he became Lord Privy Seal in Asquith's reconstructed Ministry, a member of the War Committee, and President of the Air Board. In Dec. 1916, on the formation of the Lloyd George Gov., he became Lord President of the Council, leader of the House of Lords, and member of the War Cabinet. In Oct. 1919 he succeeded Balfour as Foreign Secretary; and he remained so under Bonar Law and Baldwin. In 1922-23 he was at Lausanne to negotiate peace with Turkey. In Aug. 1923 he sent a blatantly undiplomatic note to France about the Ruhr occupation. He retired at the beginning of 1924, having earned the reputation of being a great viceroy, a great Foreign Secretary, and one of the finest orators of his times. His father's barony and baronetcy had devolved on him in 1916; and on June 28, 1921, he had been created Marquess. That year he received the Garter.

He took great interest in architecture; all the old buildings that came into his custody were the subject of his closest care, e.g. Tattershall Castle, Lincolnshire; Bodiam Castle, Sussex; and Montacute House, Somerset.

His manners and his outlook on life were more appropriate to the eighteenth than to the twentieth century; the former were so magnificent that his colleagues alluded to him as 'the Purple Emperor.' He was twice married—1st to a Miss Leiter of U.S.A. (d. 1906), 2nd (1917) to the widow of Alfred Duggan of Buenos Aires. By the former he had three daughters—the second of whom is Lady Cynthia Mosley. All his life he had been subject to attacks of a spinal complaint, which often disabled him and caused him acute pain. He d. after an operation on March 9, 1925, at his London house, Carlton House Terrace. He left no male issue to succeed him in the marquessate.

His viceregal speeches, *Lord Curzon in India*, were published in 1906. He had travelled widely in the East, and many of his writings concern his experiences there. Publications: *Russia in Central Asia*, 1889; *Persia and the Persian Question*, 1892; *Problems of the Far East*, 1894; *Principles and Methods of University Reform*, 1909; *Modern Parliamentary Eloquence*, 1913; *War Poems and other Translations*, 1915; *Subjects*

of the Day, 1915; *Tales of Travel*, 1923. Consult: Lipsett, *Lord Curzon in India*, 1903; *The Life of Lord Curzon*, by the Earl of Ronaldshay (Marquess of Zetland) 1927-28.

Cusa, Nikolaus of, or Nikolaus Cusanus (1401-64), whose proper name was Chrypffs, a German cardinal and philosopher, b. at Kues on the Moselle, in the diocese of Trèves, of humble origin. He was educated at the university at Padua and became archdeacon of Liège and sat in the Council of Basel (1431-49). For the council he wrote *De Concordantia Catholica*, opposing the papal claims, but in 1440 he changed his views, entered the papal service and was made a cardinal in 1448. Two years later he was consecrated bishop of Brixen in the Tyrol and papal legate for Germany. C. broke away from the prevailing scholasticism and indulged in mystical speculations which have been described as pantheistic-unjustly, however, for while asserting that the Spirit of God breathed over the world, he adds that the Divine Being never became part of the world. He was also a mathematician and believed in the revolution of the earth round the sun. In 1436 he suggested the reform of the Julian calendar. Consult Scharpf, *Der Cardinal und Bischof Nikolaus von Cusa*, 1871; Schang, *Cardinal Nikolaus von Cusa als Mathematiker*, 1872.

Cusco-China, the bark of the *Cinchona pubescens*, which grows in Cuzco, Peru. It contains an alkaloid called cusco-cinchonine, or cusconine. When applied medicinally it excites warmth, and is therefore recommended in cold, intermittent, and typhoid states.

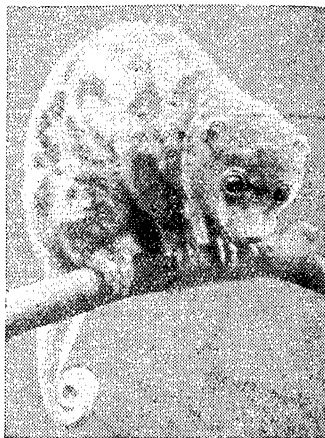
Cuscus, or Phalanger, a genus of marsupials. There are five species, all of which are about the size of a cat, and these inhabit Australia and the E. Indies. They have a prehensile tail, an opposable big toe and in habit they are arboreal. *C.* (or *Ph.*) *maculatus* is known as the spotted *C.* or tiger cat; *C. ursinus* and *C. celebensis* are natives of the Celebes.

Cush (Hebrew *Kūsh*), according to the genealogy in Genesis x., the eldest son of Ham, and the eponymous ancestor of the Cushites.

Cushat (*Columba palumbus*), known also as the Ring Dove, or Wood Pigeon, a member of the sub-family of the Columbinae, family of the Columbidae. It receives one of its names from the white patches forming a ring round its neck. It is distributed throughout the Palearctic region, and has recently multiplied greatly in Britain. Besides the white neck patches, it has also a

white wing-bar. The eggs are white, the number being usually two.

Cushendun, Ronald John McNeill, 1st Baron, British statesman; b. April 30, 1861; son of Edmund McNeill, of Craigdun and Cushendun, co. Antrim; descended from Torquill, chief of clan Neill in early part of fifteenth century. Educated: Harrow; and Christ Church, Oxford; graduated 1884. Called to Bar, 1888. Assistant editor *St. James's*



SPOTTED CUSCOS

Gazette, 1899; editor, 1900-4. Assisted in preparation of 11th ed. of *Encyclopædia Britannica*, 1906-11. After various unsuccessful attempts, was elected M.P. (Cons.) for St. Augustine div. of Kent, 1911-18; for Canterbury div., 1918-27. Strongly supported Ulster's pre-war preparations against Home Rule. In Baldwin administrations, Parliamentary Under-Secretary for Foreign Affairs, 1922-24 and 1924-25; Financial Secretary to Treasury, 1925-27. Ennobled Nov. 7, 1927. Chancellor of the duchy of Lancaster, 1927-29; acting Foreign Secretary (during illness of Sir A. Chamberlain), Aug.-Dec. 1928; signed Kellogg Pact. Publications: *Home Rule: its History and Danger*, 1907; *Socialism (in The New Order)*, 1908; *History of Australia and New Zealand (Historians' History of the World)*, 1908; *Ulster's Stand for Union*, 1922.

Cushing, Caleb (1800-79), an American politician, b. at Salisbury in Massachusetts, and educated at Harvard. He was called to the Bar in

1822 and practised at Newburyport. He contributed legal articles to the *North American Review*, and in 1825 was elected to the state legislature, and in the following year to the state senate. He was elected to congress in 1835, and under the presidency of Tyler, became the first American Minister Plenipotentiary to China. In this capacity, he made a treaty between his own country and China in 1844, which opened up China to American missionaries. On his return to the States he advocated the war with Mexico (1846-48) and served in it, rising to the rank of brigadier-general. In 1852 he was appointed judge of the supreme court of Massachusetts and joined the ministry of President Pierce in 1853, when he was made Attorney-General. During the Civil War, he supported the union. He was one of three in the United States counsel in the Alabama Arbitration. From 1874-77, he acted as the United States ambassador in Spain. Author of *The Practical Principles of Political Economy*, 1826; *The Growth and Territorial Progress of the United States*, 1839; *Reminiscences of Spain*, 1833; *Historical and Political Review of the Revolution in France*, 1833, etc. Consult Livingston's *Portraits of Eminent Americans*, 1851.

Cushing, Harvey Williams, American surgeon, *b.* in Cleveland, O., 1869; son of Henry Kirke C., a physician and son and grandson of physicians. Educated at Yale (graduated 1891) and Harvard (A.M. and M.D. 1895). Began practice in 1895. Associate-Professor of Surgery at Johns Hopkins University, 1902-11; also pursued study abroad, at Berne and Liverpool. From 1911, Professor of Surgery at Harvard. From May 1917 till March 1919 he was in France; director, U.S.A. Base Hospital No. 5 attached to British Expeditionary Force; senior consultant in neurological surgery to Amer. Expeditionary Force, 1918; Colonel, Medical Corps, U.S.A. (D.S.M., U.S.). Holds many foreign honorary degrees and decorations. Has written medical works, and a *Life of Sir William Osler*, 1925.

Cusaing, William Barker (1842-74), an American naval officer, distinguished himself against the Confederates, notably in the destruction of the Confederate ironclad *Albatross*.

Cushing, a city in Payne co., Oklahoma, U.S.A., in a cotton and oil producing country. Pop. 9301.

Cushman, Charlotte Saunders (1816-76), a celebrated American actress, *b.* at Boston, of Puritan descent. She made her debut as an opera singer in 1834 in *The Marriage of Figaro*, but her voice suddenly failed,

and in the following year she appeared as Lady Macbeth, to the end of her life her greatest rôle. She played in comedy parts, but excelled mainly in tragedy. In 1844 she made a successful tour through the North American States with Macready, and afterwards appeared in London and Rome. Her chief parts, beside Lady Macbeth, were Romeo, Rosalind, Meg Merrilees, and Ophelia. Consult E. Stebbins, *Charlotte Cushman: Her Letters and Memories of Her Life*, 1878; and C. E. Clement, *Charlotte Cushman*, 1882.

Cusp, a term applied to the foliated points which terminate the internal



CUSPS

curves of the trefoiled, cinquefoiled, etc., heads of pointed arch windows.

Cusset, a tn. of France in the dept. of Allier, and the arron. of Lapalisse, 30 m. S.E. of Moulins. It is noted for its mineral springs, also for manufacture of linen, paper, and basket work. Pop. 7670.

Custard-apple, or Bullock's Heart, the popular name of the species of Anonaceæ technically known as *Anona reticulata*. The plant is a native of tropical America and is allied to the Cherimoyer (*q.v.*). See ANONA.

Custer, George Armstrong (1839-76), an American soldier, *b.* in New Rumley, Ohio, U.S.A. He fought with distinction through the Civil War, serving successively under Kearny and McClellan. As major-general of the volunteers he defeated General Early at Waynesboro in 1864. In 1867-68 he took part in Hancock's expedition against the Cheyennes. He several times defeated other hostile Indians in the west, and was finally killed with his men by a body of Sioux near the Little Big Horn in Montana. He wrote *My Life on the Plains*, 1874. Consult Whittaker's *Life of General George A. Custer*, 1876; and Mrs. C.'s *Boots and Saddles, or Life with General Custer in Dakota*, 1885.

Customs or Usages. In a general sense, C. or U. may be said to be the source or basis of all principles of law. In England C. or U. are said to be either general or local; the former have prevailed from time immemorial, and form the foundations of the common law, while the latter are peculiar to certain districts only, and in their nature form

exceptions to common law principles. The 'Law Merchant,' or customs of merchants, furnished an instance of local or particular customs, but by reason of the subsequent universality of their application gradually became engrafted into the common law. To be valid, C. or U. must have existed from time immemorial (the time of legal memory is fixed as not going beyond 1189). In addition, they must be shown to have been continuous; universally acquiesced in; reasonable, *i.e.* not contrary to any known principle of law or public morality; definite; and in the opinion of those among whom the custom is alleged to exist, binding. See also COMMON LAW.

Customs Duties consist for the most part of taxes levied upon goods and produce brought for consumption from foreign countries, but may include taxes on certain exports. The term also embraces taxes on goods and produce passing from one port to another of the same country, like the Fr. octroi system. At the present time there is no duty on goods exported from the United Kingdom, that on coal, which was the last maintained, having been abolished in 1845, though for a short period, 1902-6, there was a small impost of 1s. a ton on coal to help meet the cost of the Boer War. C. D. furnish an example of indirect taxation, that is, they are taxes which, according to Adam Smith, are demanded from one person in the expectation and intention that he shall indemnify himself at the expense of another. The incidence of such taxation is borne by the person out of whose pocket the tax really comes. Historically C. D. sprang from the royal prerogative of regulating all commercial matters, and the liability of imports to a charge levied by the king is of very remote date. According to Sir William Anson, customs originated in a charge intended by way of repayment to the king for the cost incurred in maintaining the ports and keeping the sea clear from pirates. Later on the charges were increased, and embraced prisage, *i.e.* the royal right to one cask of wine out of every ten in the ship's cargo, at 20s. a cask; customs on general merchandise; and on wool, fish, salt, and leather. Then merchants began to complain of the levy of 'evil tolls,' with the result that by Magna Charta they were to be allowed to trade without being subject to any but 'ancient and lawful customs.' In 1275 Edward I. in a statute which was probably the earliest passed in the United Kingdom whereby the crown was author-

ised to levy C. D., was granted in exchange for the 'ancient and lawful customs' (*antiqua custuma*) of the Charter an export duty of half a mark on every sack of wool, and one mark on the last of leather. By the *Confirmatio Cartarum*, 1297, these duties were excluded from the express surrender by the king of the right to impose arbitrary customs. In 1303, by the *Carta Mercatoria*, foreign merchants were charged forty pence on every sack of wool and half a mark on the last of leather in consideration of certain privileges. This charge was known as the *nova custuma*, and was refused by the representatives of the burgesses (*q.v.*). The *antiqua* and *nova custuma* remained, however, together with prisage and butlerage upon imported wines, a part of the hereditary revenues of the crown until their absorption in the subsidies of tonnage and poundage made to the crown at the beginning of each reign or parliament. The mode long employed in the collection of these duties was to affix a certain rate or value upon each kind or article of merchandise and to grant what was called a *subsidy* upon these rates. The word *tonnage* in the early statutes was applied to a specific duty charged on the importation of each ton or tun of wine and the exportation of each tun of beer; the word *poundage* was applied to other articles valued in the mode above mentioned. James I. made unconstitutional and illegal impositions, and in 1608 issued a Book of Rates imposing a number of new and heavy duties. Years of bitter controversy followed, and the resistance of the merchant Bate to the imposition of the added duty on currants and the judgment by servile judges of the Court of Exchequer in favour of the crown form an epoch in the constitutional history of the United Kingdom, and confirm the celebrated aphorism of Hallam that our liberties were purchased by the money of our forefathers. The Petition of Right, 1628, declared these impositions illegal. The first Book of Rates agreed upon by the House of Commons is generally believed to be that compiled in 1642 by a committee of the House. In 1660, at the restoration of Charles II., the C. D. were consolidated and the principle of poundage was altered in regard to certain articles, upon which specific duties were imposed instead; but the old system of affixing a certain value on each article was adhered to in regard to the bulk of the articles, the time-honoured distinctions between *antiqua* and *nova custuma* were abolished, and rates were classified under three heads, *viz.* tonnage on wine, poundage

on imported and exported goods, and a duty on woollen cloth, which last duty was repealed in 1700. In the reigns of William III. and Anne many additional specific rates were imposed in place of the valuation for the subsidy. This course of substitution was pursued from time to time, until in 1747 there were as many as thirty-nine principal branches of C. D. with subdivisions applying to different kinds of goods, the whole constituting an endless embarrassment to traders. In 1787 Pitt effected a new consolidation of C. D., and the entire revenue derived therefrom was to be paid into a single fund, called the Consolidated Fund, thus doing away with the old practice of allocating each duty to a specific service or particular public purpose. Several Consolidation Acts have been passed since that time, and new imposts created. Prior to 1842 there were no fewer than 1150 articles chargeable with duty; and difficulties were increased by the existence of a great number of Acts of Parliament dealing with C. D. In 1853 the solicitor for the customs was employed on a work of complete consolidation. The result of his labours was a condensation of the various acts into a clear methodical arrangement which formed the basis of 'The Customs Consolidation Act of 1853.' Under that Act provision was made for the first time for the acceptance of general or covering bonds in lieu of the immense number of separate or special bonds, which previously involved many thousand attendances per annum of merchants and their sureties. Between 1842 and 1853, however, a salutary change had come over the financial policy of the United Kingdom. With the advent of Peel came the initiation of the policy that was carried on by Gladstone and other statesmen after him, and which is in substance the fiscal policy of the country to the present day (1930). That policy, which was twofold, was directed to the simplification and cheapening of the collection of revenue by means of a reduction of the number of articles or commodities on which duty is leviable; to the strengthening of the home industries by the abandonment of all taxes on raw material imported into the country. In 1845 Peel reduced the number of leviable articles by 460, and the reduction has continued steadily until the number, in 1908, was only fifteen. By about 1872 all foreign products were free from duty on importation, with the exception of ten leading articles, comprising cocoa, coffee, currants, figs, raisins, spirits, sugar, tea, tobacco, and wine—the minor articles enumerated

under those heads being merely specified modifications, enumerated to prevent evasion by entry under the different names of their various compounds—and even these were allowed very considerable reductions. Until 1869 corn and flour contributed to the revenue at nominal rates, corn at 3*d.* and flour at 1*d.* per cwt. After 1869 both were admitted free, and it is hardly an exaggeration to say that the decision of the electorate in favour of the maintenance of a free trade policy was a decision due as much to fear that some corn duty might be imposed as to the fear that food-prices would rise as an indirect result of tariffs proposed on imported manufactured articles. The gross amount of customs revenue in the year 1872 was £20,928,194; for the year ending March 31, 1912, £33,649,000, and for the year ending March 31, 1930, £119,580,000. The management and collection of C. D. are committed by the Customs Consolidation Act of 1876 to a board of five commissioners, subject to the authority of the Treasury, each of whom holds office during the royal pleasure. In the Finance Act of 1925, Mr. Winston Churchill, as Chancellor of the Exchequer, imposed various new duties which were much criticised by free traders. A duty equal to 33½ per cent. *ad valorem* was imposed as from July 1, 1925, on motor cars, motor bicycles, motor tricycles, with their component parts other than tyres; musical instruments, including gramophones, pianolas, and similar instruments, with component parts and records; clocks and watches, with component parts, imported into Gt. Britain or Northern Ireland. In respect of cinematograph films the duty levied was one halfpenny per linear foot of the standard width of 1½ inches of blank film on which no picture had been impressed; 1*d.* per linear foot for positives, *i.e.* films with pictures whether developed or not; and 5*d.* per linear foot for negatives. By the same Act a customs duty equal to 33½ per cent. of the value of the following imports was also imposed for five years: lace of cotton, silk, or other fibre, whether made by hand or machine; products, not being solid fabrics, of the machines known as the Leaver's lace machine, the lace-curtain machine, the lace-net machine, or the circular lace machine; embroidery manufactured on net or any fabric which (or the main part of which) is eliminated before the article reaches its final stage. As from Aug. 16, 1925, for four years a duty of £4 per cwt. on imported hops and an amount equal to the

duty on the quantity of hops used in the manufacture of extracts or essences was levied. The 1925 Finance Act was also noteworthy for introducing a measure of Empire preference in respect of sugar, molasses, glucose, and saccharin produced within the Empire. Preferential rates of duty were fixed at three-quarters of the full rate on tobacco; $33\frac{1}{3}$ per cent. of the full rate on wine exceeding 30 degrees of proof spirit; 50 per cent. of the full rate on sparkling wine (additional duty); currants and dried fruit were admitted free of duty. Preferential rates were fixed at five-sixths of the full rate on silk and artificial silk, and two-thirds of the full rate on hops, lace, and embroidery, on motor cars, motor bicycles, motor tricycles, musical instruments, clocks, watches, and cinematograph films.

The following table gives under

specting C. D.; drawbacks; bonds and securities entered into by persons for the due performance of any condition relative to the customs; penalties for signing false declarations relating to the customs; prevention of smuggling; and legal proceedings, civil or criminal, under the various Customs Acts. A 'drawback' is an allowance made by the commissioners to merchants on the re-exportation of certain imported goods liable to duties, which allowance in some cases consists of the whole, in others of a part, of the C. D. which had been paid upon the importation. The effect is that goods can then be sold in a foreign market at their normal cost in the home market. The articles or commodities in regard to which drawbacks are allowed and the rates of the drawbacks respectively are: amorphous carbon electrodes, arc lamp carbons, cinematograph films, clocks and

Year ended March 31.	Tea.	Cocoa and Coffee.	Sugar.	Tobacco and Snuff.	Wine.	Spirits.	Matches.	Clocks and Watches.
	£	£	£	£	£	£	£	£
1925	5,981,033	882,464	20,035,072	51,998,372	3,752,029	8,229,054	1,551,908	...
1926	5,790,841	940,412	18,394,615	53,592,435	3,752,760	7,938,059	1,711,182	179,642
1927	5,962,408	960,549	17,429,320	53,945,660	4,335,992	6,494,390	2,127,598	417,355
1928	5,791,485	902,189	17,039,115	53,206,703	4,156,194	6,799,169	2,216,363	559,279
1929	5,750,718	907,741	13,911,816	59,194,861	4,256,243	6,669,652	2,071,859	614,465

various headings against respective years certain receipts from customs.

Key Industry Duties were imposed to protect Key Industries and the following table gives receipts under various headings:—

watches, gloves, hops, hosiery, hydro-carbon oils, ignition magnetos, knives, lace, and lace embroidery, mantles for incandescent lighting, metallic tungsten, molybdenum, motor cars and parts, musical instruments,

Articles.	1927-28.	
	Value.	Net Receipt.
Optical Glass, etc.	£474,978	£237,609
Beakers, Flasks, Burettes, etc.	140,413	46,793
Galvanometers, Pyrometers, etc.	146,509	48,320
Wireless Valves, etc.	121,578	40,524
Ignition Magnetoes, etc.	40,676	13,558
Arc-lamps	23,248	18,397
Hosiery Latch		
Needles	62,213	20,737

Articles.	1927-28.	
	Value.	Net Receipt.
Metallic Tungsten, etc.	37,937	12,646
Synthetic Organic Chemicals	572,447	190,484
Amorphous Carbon		
Electrodes	355	119
Molybdenum, etc.	10,399	3,463
Total	£1,035,758	£633,659

The Customs Consolidation Act, 1876, which, with the various amending Acts passed since that time, may be regarded as the principal statute relating to C. D., contains a great number of provisions dealing in detail with the collection and management of duties; disputes and inquiries re-

optical glass, scientific instruments, synthetic organic chemicals, wireless valves and wrapping paper, the rate of drawback in the case of all the foregoing articles is the amount of duty paid; beer imported and subsequently exported, £5 3s. 3d. for every 36 gallons, with 10d. additional

duty under the Finance Act, 1925; coffee, 14s. a 100 lb.; molasses, ranging from 2s. 3d. a cwt. to 7s. a cwt. according to percentage of sweetening matter; silk and artificial silk: duty-paid yarn made in Great Britain or N. Ireland, 3s. 9d. to 4s. 1d., tissue 4s. 3d. to 7s. 6d., artificial silk (yarn, 7d. to 9d.; tissue, 11d. to 1s. 9d., waste, 6d.); on made-up silk or artificial silk articles, and on which duty has been paid, the drawback is the amount of duty payable on the same weight of the like goods. There is also an alternative scale of drawbacks for artificial silk goods in respect of material contained in the goods being material on which a custom duty or an excise duty has been paid; and there is also a similar alternative scale for silk tissues. On tobacco manufactured in Gt. Britain or N. Ireland, the rate is 10s. 0½d. per lb. (cigars), 9s. 10d. (cigarettes), and 9s. 3½d. (snuff).

United States of America.—The customs in each port is under the direction of a collector of the port, appointed by the President, and responsible to the Secretary of the Treasury. The U.S.A. custom tariff is protective in character, the principle being general taxation of imports, the exceptions being specifically named in a 'Free List.' Duties are specific and *ad valorem*, some classes of merchandise being under one, some under the other, some under both. The *ad valorem* duties are theoretically preferable, but call for such a complex machinery to defeat fraud that their cost of collection bears a much higher ratio to their value. The custom tariff of 1897 (Dingley) required 444 paragraphs to enumerate the various schedules, classes, and rates. The earliest custom tariff was imposed in July 1789 with the object of protection; and a struggle between the two political parties, calling the one for a protective and the other for a revenue tariff, lasted from 1818 to 1824, the South gradually identifying itself with the latter object and the North with the former. In 1824 the high protective tariff triumphed, and the famous 'Tariff of 1828' laid prohibitive duties on all goods which were manufactured in the U.S.A. In 1833 the 'Compromise Tariff,' introduced by Henry Clay, provided for gradual reduction till 1842, when a universal duty of 20 per cent. was to remain. It proved a failure, and in 1846 and 1857 low tariff, for revenue, prevailed. In 1861 again the Republicans introduced the principle of high protective duties, later increasing them, to meet the expenses of the Civil War. The Underwood Tariff,

1913, put in force by the Democrats in accordance with the pre-election pledge of 'tariff-revision downwards,' put many articles of food and raw material in the Free List—sugar, meats, flour, boots, lumber, coal, milk, fish, potatoes, etc., etc.—and reduced the duties on all necessary manufactured articles: Woollens, duties of 99 and 60 per cent. reduced to 35 and 20 per cent.; crockery, 55 to 35 per cent.; clothes (ready-made), 76 to 35 per cent.; rubber, 35 to 10 per cent.; cattle, 27 to 10 per cent.; soap, 20 to 5 per cent.; medicines, 59 to 31 per cent.; furniture, 35 to 15 per cent., etc.; while the duties on luxuries such as diamonds, furs, spices, long kid gloves, and so forth, were increased. When the Republicans came into power in 1921, true to their high tariff traditions, they at once set about to change the tariff. The bill which eventually became law was named after Congressman Fordney and Senator McCumber. It came into force on Sept. 21, 1922. The Fordney-McCumber Bill put quite a number of articles on the free list, but was more notable because on many articles the duties were doubled or trebled or more. Raw wool was taxed 31 cents per pound, whereas it was admitted free under the Underwood Act. Pig iron, also admitted free, was now taxed 75 cents per ton. Men's leather gloves were raised from one dollar to five dollars per dozen pairs; Plate glass was more than doubled; lemons, quadrupled; hardware was greatly increased, and sugar was raised from 71 cents to \$1.76 on Cuban sugar and \$2.20 on sugar from other countries. The rates were made flexible, the President being given power to raise or lower them under the advice of the Federal Tariff Commission. For the first time in the history of American tariff legislation, while the Bill was before Congress it was attacked by some of the leading Republican papers and some of the manufacturers who took the view that since the U.S.A. was now a creditor nation, it should do everything to encourage foreign imports, otherwise foreign nations could not pay America what they owed. The 71st Congress, which met after President Hoover was inducted into office, proceeded to draft a new and higher Republican protective tariff Bill. While it was being debated, many professors of economics in the leading universities, and some important business men and Republican as well as Democratic newspapers, violently attacked the measure. Notwithstanding, when partisan majorities in both Houses

of Congress passed the Bill, it was signed by President Hoover on June 17, 1930. The whole tenor of the Bill was still further to increase the already high tariffs of the Fordney-McCumber Bill. The new measure is known as the Hawley-Smoot tariff, being named after Congressman Hawley and Senator Smoot, who piloted it through their respective Houses. This Bill, too, permits the President to decrease or increase the tariffs after hearings by and advice of the Tariff Commission, but in no case is this change to exceed 50 per cent. of the figures fixed in the Bill. Also the President is not allowed to transfer anything from the free list to the dutiable list, or vice versa. There were not lacking those who claimed that one of the causes of the great American business slump of 1930-31 was this excessive tariff Bill. The revenue from C. D. in millions of dollars was in 1900, 233; 1901, 238; 1902, 254; 1903, 284; 1904, 261; 1905, 261; 1906, 300; 1907, 332; 1908, 286; 1909, 300; 1910, 333; 1911, 314; 1912, 311; 1913, 318; 1914, 292; 1915, 209; 1916, 213; 1917, 225; 1918, 179; and 1919, 184. This latter was the low ebb following the results of the Great War. The receipts then began to increase rapidly. In 1920 they were 322. In 1926, 579; 1927, 605; 1928, 568; 1929, 602; 1930, 587.

Customs Duties and Protection.—In a manner of speaking the mere imposition of C. D. may be said to be a negation of the principles of free trade. But its correlative, protection, implies the placing of foreign producers at a disadvantage as compared with the domestic producers of the country imposing the duties. The primary object of C. D. is to obtain revenue, and the burden on foreign goods imposed by C. D. is in the United Kingdom counterbalanced by the imposition of excise duties on certain commodities produced at home. By this equipoise the fiscal policy of the United Kingdom is in essence a free trade policy, and one which has been evolved, as shown above, out of a system which was at first highly protective. England is almost unique in its policy. France, after Napoleon III. had modified its protectionist duties, with a view to cementing friendly relations with Great Britain, reverted in 1880 to a highly protective tariff. By the Commercial Treaty of 1860 with Great Britain the duties on practically all manufactured commodities were lowered to something like 10 per cent. Treaties with other countries soon followed. The reaction to protection was

due in a measure to the agricultural depression some twelve years later following on the competition of the U.S.A. in wheat exportation. Germany presents a parallel history when during the earlier part of the nineteenth century the various states which compose the present German empire formed themselves into a Zollverein, or Customs Union (*q.v.*).

Customs Union, denotes a federation of independent states or nations with the object of assimilating their respective arrangements for the collection of duties on imports. The term is of especial significance in relation to Germany, for it may be said that the consciousness of a national unity among the different German peoples is ultimately traceable to the establishment of the Zollverein (*Zoll*, toll; *Verein*, union) between Prussia and some of the smaller states shortly after the Napoleonic wars. The political condition of the numerous petty German sovereign states was then one of entire confusion. The Zollverein was organised as the outcome of a general reform of the existing tariff conditions, which imposed tariffs on no fewer than 2800 classes of goods in various parts of Prussia, while in others there prevailed a system of free importation. From the time Hesse joined the union in 1828 the history of the Zollverein down to 1871 was one continuous process of an absorption of one state after another until, in that year, the German empire itself was founded, and the Prussian Zollverein was finally transformed into the German Zollverein. Hamburg and Bremen were included in 1888; prior to that time Germany's economic policy had been one of free trade, but in that year was introduced a hard-and-fast protective system which, with subsequent modifications in the shape of commercial treaties (*q.v.*) with some of the neighbouring nations and most favoured nation treatment for Great Britain, has continued down to the present day. A somewhat parallel case is the development of the C. U. which was formed between Cape Colony, the Orange Free State, and British Bechuanaland towards the end of last century, and which was joined shortly afterwards by Basutoland. The question of the adoption of some kind of C. U. or Zollverein for the different members of the British Empire has been before the British public in a more or less urgent form since the vigorous tariff reform campaign undertaken by Joseph Chamberlain in the autumn of 1903. In 1902, as Secretary of State for the Colonies, he had presided over

a conference of the dominion premiers visiting London for the coronation of King Edward VII., when the following resolutions were unanimously adopted:—(1) that preferential trading between the United Kingdom and the Dominions would facilitate commercial intercourse and strengthen the empire; (2) that a general system of free trade within the empire was not immediately practicable; (3) that it was desirable that colonies should give substantial preference to products and manufactures of the United Kingdom; (4) urging on the Imperial Gov. the expediency of granting preference to products and manufactures of the colonies, by exemption from or reduction of duties then or afterwards imposed; (5) pledging the premiers to ask their respective govts. to take measures necessary to give effect to the principle inherent in the resolutions. England has, so far, in spite of campaigns for the imposition of tariffs with suitable preference for the dominions, declared her faith in free trade. The proposals put forward at the Imperial Conference held in London 1930 by the Dominion premiers for the imposition of a tariff on foreign food stuffs were rejected by the Labour Gov.

Custos Brevium. Offices so called existed until 1831, both in the court of King's Bench and the court of Common Pleas. The duties appertaining to the office, which were always performed by deputy, were to take custody of all writs returnable to the above courts, and to file them.

Custos Rotulorum (Keeper of the Rolls), in England a justice of the peace to whose custody are committed the records or rolls of the county sessions. It is the practice to appoint as C. R. the lord-lieutenant of the county.

Custozza, a vil. of Italy, about 11 m. S.W. of Verona, the scene of two important battles in Italian history. Here in 1848 the Austrians, led by Radetzky, defeated Albert, King of Sardinia, and in 1866 the Italian troops, under Lamarmora, were defeated by the Austrians.

Cutch, or **Kach**: 1. A protected native state in Gujarat, Bombay. It is a peninsula, bounded on the N. by the Rann of Cutch, on the W. by the Indus and Arabian Sea, on the S. by the Indian Ocean and Gulf of Cutch. It is crossed by two ranges of hills. Mineral products are coal, iron, and alum. Volcanic eruptions and earthquake shocks are of frequent occurrence. The ruler is called the Maharraj, he attended the Imperial

Conference in London and the League Assembly at Geneva as a representative of India. Capital, Bhuj. Area, excluding the Rann, 6500 sq. m. Pop. 454,547. 2. Rann of Runn of Cutch, a salt morass on the N. of the state of C. During the S.W. monsoon it fills and becomes an arm of the sea. In the dry season it is divided into two shallow lakes, the smaller, on the E., having an area of 2000 sq. m., and the Great Rann on the W. an area of 7000 sq. m. Wild asses are found on the shores of the lakes and swarms of flies.

Cuthbert, St., of Durham (c. 635-687), was b., probably, in Northumbria, of Lowland Scottish parentage. In 651 he had a vision of a choir of angels bearing the soul of St.



EGFRID, KING OF NORTHUMBRIA, AND AN ECCLESIASTICAL SYNOD OFFERING THE BISHOPRIC OF HEXHAM TO ST. CUTHBERT

Aidan to heaven, and in the same year joined the monastery of Old Melrose. On the death of St. Boisil, in 661, he was chosen prior, with St. Eata as his abbot, whom he later accompanied to the monastery of Lindisfarne. In 676 he felt that he was called to a sterner and simpler life, and became a hermit on House Island off Farne Island, where he built his hut with his own hands. Egfrid, King of Northumbria, and Trumwin, Bishop of the Picts, per-

sued him, in 684, to accept the bishopric of Hexham, which he subsequently exchanged for that of Lindisfarne. Two years later he resigned his bishopric and once again withdrew to his cell, where he *d.* within a year. His body was removed from Lindisfarne in 875 for fear of its being desecrated by the Danes, and for a time remained first at Chester-le-Street and then at Ripon, ultimately finding its resting-place in Durham. September 4 was commemorated as the anniversary of his death. Consult Bede's *Historia Ecclesiastica Gentis Anglorum*; and modern Lives by Raine, 1828; Eyre, 1849; and Fryer, 1880.

Cuticle, *see* SKIN.

Cutler, Manasseh (1742-1823), an American clergyman, who acted as chaplain during War of Independence to Col. Ebenezer Francis. He took a leading part in drafting the ordinance of 1787 for the government of the North-west Territory.

Cutlery (Old Fr. *coellier*, Lat. *cutellus*, a little knife), a term applied originally to cutting instruments of all kinds. The word is often extended to include all kinds of table implements, so that forks may be included, but has also been restricted in its application, so that the larger kinds of cutting instruments, such as chisels and saws, are excluded from its sense. Knives were not placed on the table till the early sixteenth century, diners being expected to carry on their persons such pocket-knives as they might require. Forks were introduced from Italy in the reign of James I. Sheffield was famous for its C. as early as the fourteenth century, but lost some of its pre-eminence by the seventeenth century, when Birmingham was regarded as the centre of the trade. But since 1800 Sheffield has increased in industrial prosperity, and its C. wares have now a world-wide fame. C. also applies to pen-knives, razors, scissors, to carpenters' tools, sickles, special surgical instruments, and to swords and rapiers, all of which see under separate articles.

Cuttack, a district of Bengal, India, situated in the prov. of Orissa, with an area of 3517 sq. m. It is watered by the Braminy, Mahanuddy, Coyle, and other rivers, all teeming with fish. Near the coast are hills covered with teak and other timber. Rice, pulse, and sugar are cultivated in the lowlands, and wheat and maize on the uplands. The city of C. is noted for its gold and silver filigree work. There is a College, Medical School, and School of Engineering, and a fine gateway of a ruined fort. Pop. 51,007.

Cutter, the name given to a small vessel, part of the equipment of a man-of-war. They are used for sailing or rowing, and are carried amidships or at the davits. It is also used of a vessel with a single mast, a mainsail, a fore-staysail, and a jib at the bowsprit end.

Cuttle-fish, sometimes regarded as the name of any mollusc of the class Cephalopoda (*q.v.*), but is more usually applied to the species of the genus *Sepia*. The species, of which *S. officinalis*, the common C. of Britain, is an example, have two gills, eight arms, and two long tentacles, a broad and flattened body, an ink-bag, narrow and elongated fins, and the calcareous shell, called the cuttlebone, is internal. In length a C. may be from 6 to 10 in., and its colour varies from grey to brown. The genus is widely distributed and is notable as producing the pigment known as sepia.

Cutts, John, Baron Cutts of Gowran, Ireland (1661-1707), a British lieutenant-general, was probably b. at Arkesden in Essex. He was educated at Catherine Hall, Cambridge, and joined the suite of the Duke of Monmouth. He later served under Charles, Duke of Lorraine, against the Turks, in Hungary, and in 1686 played a prominent part in the capture of Buda. He then served in Holland under William of Orange, whom he accompanied to England and with whom he fought in Ireland at the battle of the Boyne and the siege of Limerick (1690). For his services he was created Baron C. of Gowran. During the following twelve years he did brilliant service, being present at the battles of Steenkerque (1692), Brest (1694), Namur (1695), at the capture of Fort St. Michael (1702), and was third in command at Blenheim (1704). C. sat in parliament for several years, from 1689 to 1691, and again from 1702 to 1707. Besides being a gallant soldier, he was a scholar and a graceful versifier. His works include: *La Muse de Cavalier*, 1685; *Poetical Exercises*, 1687; and a 'Monody' in *State Poems* (p. 199) on the death of Queen Mary (1694). He was a friend of Steele, who addressed to him his *Christian Hero*, but was made ruthless fun of by Swift, particularly in his somewhat scurrilous lampoon, *Ode to a Salamander*, 1703. See Macaulay's *History of England*, vols. iii. and iv.

Cutworm, the name given to the larvæ of many species of Noctuidæ, or owl-moths, from their displeasing habit of cutting off the young shoots of plants cultivated by agriculturists. They belong to the genus

Agrotis and are allied to the army-worm and cotton-worm. *A. messoria* is a common species in America.

Cuvier, Georges Chrétien Léopold Dagobert, Baron (1769-1832), a French anatomist and naturalist, writer, and educational reformer, b. at Montbéliard department Doubs, France, then under the rule of the King of Würtemberg. He studied at the Carolinian Academy at Stuttgart, where he distinguished himself in every branch of study. At the age of nineteen he became tutor to the only son of Count d'Henrich near Caen, where he was enabled to study the animals and fossils of the shore and rocks. It was here that he pursued the researches which enabled him to reorganise the classification of invertebrate animals. In 1795



BARON CUVIER

he went to Paris and by the exertions of his friends, Tessier and Geoffroy St. Hilaire, became professor at the Jardin des Plantes. In 1798 he began to publish his papers on the fossil bones of Montmartre, which led later to his great work, *Recherches sur les Ossements Fossiles des Quadrupèdes* (1812). In 1800 was appointed professor of natural history in the College of France. Here he came under the notice of Napoleon, who, struck by his administrative ability, appointed him one of the inspectors of the lycées in the principal towns of France, and later employed him in reorganising the educational institutions all over Europe, in N. Italy, Holland, and finally in Rome. In 1814 the emperor appointed him a councillor of state, which appointment was confirmed by Louis XVIII. In 1822 his services to the Pro-

testant faith were acknowledged by his appointment as grand master of the faculties of Protestant theology in the University of Paris. In 1832 Louis Philippe made him a peer, but he died of paralysis the same year in Paris. In spite of the valuable results of his researches, C's mind was essentially cast in the mould of an older school. His method was to construct from facts or materials which he could himself observe; he had no patience with the speculative theories of his contemporaries, and was bitterly opposed to the dawning theory of evolution. In addition to the works already mentioned he wrote: *Le Règne Animal* (1816), a book which summarised his observations on the structure and habits of the animal kingdom, and was long the standard work on zoology; *Mémoire pour servir à l'Histoire et à l'Anatomie des Mollusques* (1816), in which he followed out a classification of the Mollusca, indicated by Adamson, founded upon the structure of the animal rather than the shell; *Rapport Historique sur les Sciences Naturelles*; *Histoire Naturelle des Animaux*; and many others.

Cuxhaven, or Kuxhaven, a fortified German port, in the territory of Hamburg, on the southern shore of the estuary of the Elbe, in the district Ritzbüttel. The port was formerly only used for coasting vessels and fishing craft, but was rebuilt in 1892-95, and can now berth the largest ocean steamers. There are some fine fisheries, and sea-bathing is popular. In the Great War, C. was raided by British seaplanes on Christmas Day 1915. The primary object of the expedition was, however, a reconnaissance of the Heligoland Bight, including Cuxhaven, Heligoland and Wilhelmshaven, by combined operations by ships and seaplanes. The seaplanes encountered thick weather on nearing the land, and, being compelled to fly low, were exposed to a heavy fire at short range from ships and shore batteries. Several machines were hit, but all remained in the air for over 3 hours, and succeeded in obtaining valuable information regarding the disposition of the German ships and defences. Bombs were also dropped on military points. Pop. 19,000.

Cuyaba, the cap. of the state of Matto Grosso in Brazil. In the district there are gold mines, which have been worked since 1719. The traffic is chiefly in the exchange of gold for iron and other implements. The town is well built and has a military hospital, arsenal, palaces for the

governor and the bishop, and collegiate schools. It is an important and rapidly developing distributing centre, the temperature varies between 106° and 39°. Pop. 40,000.

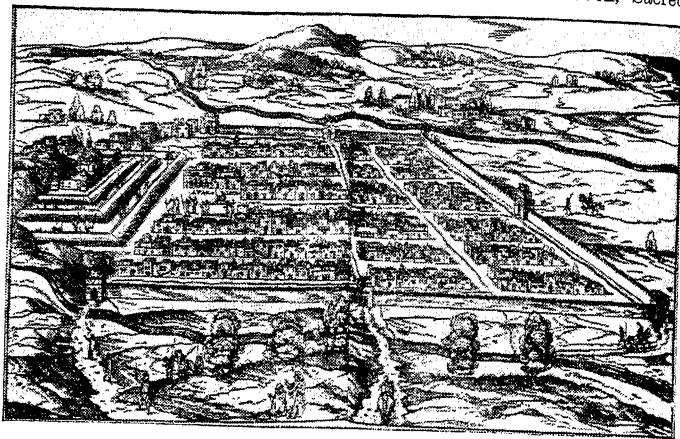
Cuyahoga Falls, a city of Summit Co., Ohio, with manufactures of iron and rubber goods, a suburb of Akron. Pop. 17,797.

Cuyapo, a municipality of Nueva Ecija prov., Luzon, Philippine Islands, growing rice. Pop 19,344.

Cuyo, a tn. and pueblo of the Philippines, cap. of the prov. of Paragua and Calamianes, on the S.W. shore of the island of C. Pop. 13,000.

C. His landscape and biblical pictures show the influence of Rembrandt, and his familiar scenes that of Teniers. 'Joseph in Prison' and 'The Visit of the Magi' are among his best known works.

Cuypers, Petrus Josephus Hubertus (1827-1921), Dutch architect; b. and d. at Roermond. Studied at the Academy of Antwerp. Pupil of Viollet-de-Duc. A student of Gothic, to whom is due the revival of that style in Dutch Roman Catholic churches. Architect of St. Jacob at the Hague, St. Barbara at Breda, St. Catherine at Eindhoven, Sacred



CUZCO

(From an old print)

Cuyp, Aalbert (1620-91), a Dutch painter, b. at Dordrecht. He was the son of Jakob Gerritsz C., a portrait painter, with whom he began his study of painting. C.'s sunset pictures have been compared favourably with those of Claude. He painted, almost entirely, scenes of outdoor life—fields, camps, markets, and the like. His reputation has increased greatly since his death, England being among the first to recognise his genius. There are eight of his works in the National Gallery, and he is also represented in the Wallace Collection and in Dublin and Dulwich. Among his best pictures are: 'The Meuse near Dort,' and 'Banks of a Lake.' Consult Buxton, *German, Flemish, and Dutch Painters*, 1881; and Timothy Cole, *Old Dutch and Flemish Masters*, 1902.

Cuyp, Benjamin (1612-52), a Dutch painter, an elder brother of Aalbert

Heart at Amsterdam, and St. Boniface at Leeuwarden. He had charge of the restoration of the Cathedral at Mainz; designed many town-halls, besides the Rijks Museum and the central railway station at Amsterdam.

Cuyuni, or Cuyuwini, a river of British Guiana; a trib. of the Essequibo. It is navigable for about 500 m., and has for one of its tributaries the gold-bearing Yuruari.

Cuzco: (1) Capital of Cuzco, a division of S. Peru, in a small valley 11,440 ft. above sea-level and nearly enclosed by mountains, 360 m. E.S.E. of Lima. It was the capital of the Incas, and was captured by Pizarro in 1533, to be superseded by Lima as the capital of the Spaniards. On the N.W. side are the ruins of a great fortress of the Incas. The chief buildings are the cathedral, the university (1598), and a college

of arts and sciences. The climate is cool and bracing, and the principal products are wool, hides, cacao, rum, rubber, sugar and gold. Indians furnish the chief market. Owing to the cost of transport there are few exports, but cotton and woollen goods, embroidery, gold and silver goods, and leather are manufactured. C. is connected with the coast and La Paz, the capital of Bolivia, by a branch line from Juliaca on the Mollendo-Puno Railway. The pop. is mainly Indian, and is estimated at about 45,000. (2) The dept. of C. is the second largest in Peru, and is mainly composed of mountains and forests. Cereals are grown in small quantities, and cattle and sheep are reared. Area, 156,317 sq. m. Pop. about 450,000.

Cuzzoni, Francesca (1700-72), an Italian singer, b. in Parma. She was trained and made her début in Italy, but her first success was in London, where she appeared in Handel's Italian Opera Company in 1722. Her jealousy was aroused by Faustina Bordoni (afterwards the wife of the composer Hasse), whom Handel engaged to sing in her place, with the result that she retired, and, on her marriage to Sandoni in 1727, returned to Vienna, where she sang at the Court Opera. She later went to Holland, and paid a second visit to London in 1748, but she had lost her voice and received no welcome. She d. in great misery and poverty at Bologna.

Cwmdu, a par. of Glamorganshire, Wales, 6 m. N.W. of Bridgend; noted for its iron and coal mines. Pop. 14,623.

Cyanamide, $\text{NH}_2\cdot\text{CN}$, is a white crystalline solid melting at 40°C . Its chief point of interest is its power of forming metallic derivatives in which the two hydrogen atoms are replaced by an atom, or atoms, of a metal. The principal metallic cyanamide is *calcium cyanamide* or 'Kalkstickstoff,' $\text{CaN}\cdot\text{CN}$, which is made by heating calcium carbide to a high temperature (about 1100°C .) in a current of nitrogen: $\text{CaC}_2 + \text{N}_2 = \text{CaN}\cdot\text{CN} + \text{C}$. The crude substance is black in colour, owing to its contamination with the carbon produced at the same time. It contains about 20 per cent. of nitrogen, all of which is ultimately liberated as ammonia by the action of water. This reaction explains the use of calcium cyanamide as a fertiliser, since the bacterial soil flora is able to convert the ammonia into nitrates, which are vital to plant growth. Agricultural practice has shown that calcium cyanamide is best adapted to soils that contain

plenty of lime. Calcium C. is also used to some extent in the manufacture of ammonia for chemical purposes. In this case the calcium C. is decomposed by steam. It is further employed in the industrial preparation of other chemicals, e.g. urea and sodium cyanide, though its agricultural use is by far the most important. The conversion of atmospheric nitrogen into a nitrogenous compound, such as calcium cyanamide, is known as the *fixation* of nitrogen, and since natural supplies of nitrates (e.g. Chile saltpetre) will become exhausted at no very remote date, the world's food supply will then depend upon the success of fixation methods. See J. R. Partington and L. H. Passar, *The Nitrogen Industry*, 1922.

Cyanææ Insulæ (Gk. *Κυανæα νῆσοι*, or *πετραί*), two rocky islands situated at the entrance of the Thracian Bosphorus into the Euxine. They were called in mythology *Planctæ* (Πλᾶγκται) and *Symplegades* (Συμπληγάδες), because they were supposed to be floating islands which wandered about and struck against ships, thus destroying them. They became stationary after the Argonauts had sailed safely past them.

Cyanic Acid ($\text{HO}\cdot\text{CN}$), a strongly acid liquid which can hardly be prepared in a free state, since it decomposes at temperatures above 0°C . Forms salts known as cyanates, the most interesting being ammonium cyanate, which gives urea on heating. The formation of urea in this manner by Wöhler in 1828 was the first formation of organic compounds from inorganic sources.

Cyanide of Potassium, see **POTASSIUM**.

Cyanides are salts of hydrocyanic, or 'prussic,' acid, HCN . Prussic acid itself is hydrogen cyanide. It was discovered in 1782 by the Swedish chemist Scheele. Technically it is prepared indirectly from molasses, but in the laboratory the usual method adopted is the action of dilute sulphuric acid on potassium cyanide, KCN . Prussic acid is a colourless volatile liquid, b.p. 26°C ., with a characteristic smell recalling that of almonds. It is excessively poisonous. Among the cyanides, *potassium cyanide* and *sodium C.* are the most important. Potassium C. is made by the action of ammonia upon a molten mixture of pot. carbonate and carbon, while sodium C. is the result of fusion of a mixture of metallic sodium and sodium ferrocyanide. Both are exceedingly poisonous and must be used with the greatest possible caution. Pot. C. is used in entomo-

logical killing-bottles and also in chemical processes. Sodium C. finds application chiefly in the extraction of gold in S. Africa, etc., *complex cyanides* are known, including *potassium ferrocyanide* and *pot. ferricyanide* (yellow and red prussiates of potash). Those important are the complex silver and gold cyanides used (in solution) in silver and gold electroplating as the electrolytic liquid. Prussic acid itself is extensively used, under suitable restrictions for killing pests, *e.g.*, noxious insects, rats in ships, plague germs, etc. For this purpose it is marketed in steel or iron cylinders.

Cyanogen (C_2N_2), a colourless poisonous soluble gas, with a smell like that of bitter almonds, produced by heating mercuric or silver cyanide. It occurs as an acid radical in a series of salts called cyanides, all of which are poisonous. The best known of these are potassium cyanide and sodium cyanide, which are used in photography and metallurgy. C. combined with hydrogen forms prussic acid, which is known as a deadly poison, but which also has medicinal properties.

Cyanometer, an instrument for comparing the shades of the sky, consisting of a circle of pieces of paper tinted with blue. These pieces vary in shade from the colour of solid indigo at 52° to colourless at 10° . When held so that a full light falls on the pattern, the circle can be turned until the shade in the sky is matched.

Cyanosis, lividity of complexion accompanied by a fullness of the capillaries and small veins of the face and lips especially. It is applied especially to the colour in certain cases of congenital disease or malformation of the heart. Temporarily it may be caused by extreme cold preventing circulations in the exposed parts. It is usually due, however, to some organic effect which prevents perfect oxidation of the blood. Thus in some cases, because the foramen ovale remains open, some blood can pass from the left auricle direct to the arteries without passing through the lungs, or again, a perforation may allow blood to pass from the right to the left ventricle, while it may be caused by an obstruction in the pulmonary artery or in the lungs, or by heart failure.

Cyathea, the genus of ferns which gives its name to the order Cyatheaceae, is to be found in its most highly developed state in tropical climates. The species are arborescent, the stems are often beautifully marked with the scars of fallen fronds, and the plants give a peculiar feature to the vegetation of many lands. C.

arboorea, the common tree fern, is a native of the W. Indies; *C. medullaris* and *C. dealbata* both grow in New Zealand, and contain a starchy matter used by the natives as food.

Cyaxeres (Gk. *Kvaçánpēs*) (625-585 B.C., or 634-594 B.C.), King of the Medes, grandson of Deioces, the founder of the Median empire. He organised a powerful and well-trained army, with which he waged war against the Lydians, the Assyrians, and the Scythians.

Cybele (Gk. *Kυβέλη*), or **Rhea Cybele**, also called **Agdistis** and **Dindymene**, a goddess of ancient mythology, worshipped throughout Phrygia, and in many parts of Western Asia. Her priests were called **Corybantes**. She was the wife of **Cronus**, and the mother of **Zeus**, **Poseidon**, and **Hades**. She was, therefore, worshipped as the mother of the gods. In Asia Minor she was regarded as a nature goddess, or universal mother, and her worship was attended with wild orgies. In Greece she was identified with **Rhea**, whose worship originated in Crete. The worship of C. was introduced into Rome in 204 B.C., where she was identified with **Ops** (**Plenty**), the mother of **Jupiter**.

Cybium, a genus of mackerel-like fishes, is also known as *Scomberomorus*, and belongs to the family *Scombridae*; the tunny and mackerel are near relatives of the species. Fossil remains occur in the Eocene, Oligocene, and Miocene.

Cycadaceae, an order of Gymnosperms containing about seventy-five species of living plants which have a long primary tap-root, an unbranched stem covered with leaf-scars, a crown of leathery, often spiny-tipped, leaves at the apex of the stem, and the flowers are usually arranged as cones. The species are found only in tropical and sub-tropical countries, and the chief genera are *Cycas*, *Zamia*, *Encephalartos*, and *Dioon*.

Cyclades, an island group which form a *νομός* of the kingdom of Greece. The name is derived from the Greek *κύκλος*, a ring, because they form a rough circle round **Delos**, stretching S.E. from **Euboea** and **Attica**. The chief islands are **Andros**, **Tenos**, **Syros**, **Mykonos**, **Paros**, **Naxos**, **Arnorgos**, **Keos**, **Kythnos**, **Seriphos**, **Melos**, and **Ios**. Many of the islands are of a volcanic origin, and from some marble is procured; **Parian marble** was very famous among the ancients. Wine, oil, gum-mastic, wax, etc., are produced and sponge fishing is carried on. The islands are a stronghold of the ancient belief in **Nereids** who are extremely beautiful and graceful with long

golden hair and voices of more sweetness than the human. In the is. of Sikinos they are subject to the deformity of having one or more donkey or goat hoofs in lieu of feet. The islands comprise an area of about 959 sq. m. Pop 141,200.

Cyclamen, a small genus of primulaceous plants, consisting of about a dozen herbs with very handsome flowers, and all are to be found in Europe or on the borders of the Mediterranean. *C. europæum*, the common C., is abundant in Sicily, and is often called sowbread, from the delight it afforded the wild boar as a food. It has been found wild in Britain; but it is probably only an escape from gardens. The plant has an underground corm, and the lobes of the corolla are reflexed. After fertilisation the flower-stalks twist round until they bury the capsular fruits in the ground, where the seeds ripen and germinate, and produce other plants. *C. persicum* has a stalk which bends over instead of twisting in the burying of the fruit; *C. hederifolium* is a species the flowers of which exhale a pleasant fragrance.

Cyclanthaceæ, a natural order of monocotyledonous plants, palm-like in habit and found in tropical America. The chief genera are *Cyclanthus* and *Carludovica*, the latter genus being of interest to Europeans from the fact that the real Panama hats are manufactured from the bleached leaves of *C. palmata*.

Cycle (Gk. κύκλος, circle), in astronomy and mathematical chronology, a period of time in which certain phenomena repeatedly occur in the same order. Cs. have been invented as a means of measuring time. The chief are the solar, that of the sun, and the lunar or metonic, that of the moon. The former consists of twenty-eight Julian years, and the latter of nineteen years. Consult the articles on the Calendar and on Chronology, and the various Cs. under their specific names, Golden Number, Indiction, etc.

Cycles and Cycling. History and Development.—It is hard to fix definitely the origin of an invention that has had so continuous a development as the cycle. Velocipedes and machines driven by hand, with three or four wheels, were known in England at the close of the eighteenth century. The earliest two-wheeled device in the nature of a bicycle appeared in Paris in 1803, while an improvement of the same invention was introduced into England in 1813 by a Baron von Drais, of Mannheim, Germany, and was known as the 'draisene' and more popularly as the 'dandy-horse.' It consisted of

two wheels, about 30 in. in diameter, one running in the track of the other, and connected by a wooden beam, which supported the saddle. The front of the beam sustained an arm-rest. Propulsion was obtained by the rider sitting astride over the beam, resting his arms on the arm-rest and alternately striking against the ground with his right and left foot. This machine, however, speedily became the butt of comic writers and caricaturists, among others George Cruikshank, and succumbed to their ridicule. The dandy-horse was developed, however, by Kirkpatrick Macmillan, a blacksmith of Dumfriesshire, who affixed cranks to the axle of the rear wheel and actuated them by long levers. This invention dates from 1840 at latest, but Macmillan's claims were hardly known in his lifetime, and the credit of being the originator of the first two-wheeled single-track mechanically-propelled machine was given to Gavin Dalzell, a cooper of Lesmahagow in Lanark, who in 1846 produced a copy of Macmillan's machine. The next development of the cycle took place in the 'seventies. In 1864 a Frenchman, Pierre Lallement, fitted cranks and pedals to the front wheel of the dandy-horse. The necessity of maintaining balance naturally led to the introduction of the movable head, which enabled the relative position of the front and rear wheel to be changed and equilibrium maintained. This invention culminated in the high bicycles known as the boneshaker, on account of the vibration caused by its frame being of wood and its wheels shod with iron tyres. At the same time numerous other devices, including tricycles of various types, were placed on the market under the name of velocipedes. The boneshaker attained a widespread popularity and was used extensively by the upper and middle classes of society. It had, however, little advantage over pedestrianism, and its discomfort and danger threatened to cause it to be relegated to the long list of obsolete inventions when a new direction was given to its development. Instead of a front-wheel driven machine, a reversion was made to rear-driven cycles, with power transmitted by a chain. This was the origin of the modern safety bicycle, and credit for it is due to J. K. Starley, of Coventry, who produced the type in 1885. The greatest step of all was perhaps the invention of the pneumatic tyre in 1888 by J. B. Dunlop, a surgeon, which secured permanently the position of the bicycle as a vehicle of transit and pleasure. Steadily increasing in popularity, the bicycle

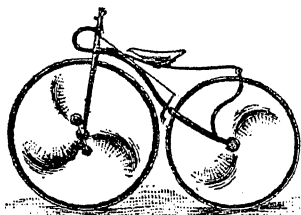
underwent an extraordinary boom in the years 1896 and 1897, when company after company was floated. The result was, however, over-capitalisation of the industry, which seriously affected the position of affairs for many years. It would be impossible to record the innumerable contrivances, many ingenious, many ridiculous, that have been thought of for improving the efficiency of the bicycle. The chain-driven machine has been threatened by the bantam bicycle, with front-wheel drive, and by the chainless rear-driven machine.



THE HOBBY-HORSE, 1818

Advocates have been found for exceptionally long cranks and exceptionally short cranks. Such devices have made no permanent headway, but others firmly established themselves. The tangent spoke diffuses the stress throughout the wheel, and has quite ousted the old direct spoke. Plunger or tyre brakes have given way before the modern rim and hub brakes. The free-wheel has become essential wherever bicycles are used for pleasure riding, though speed-riders still adhere to the fixed wheel. Of recent years the fixed gear has been more and more replaced by the variable gear. The variable gear may consist of two, three, or more ratios, changeable among themselves at the will of the rider. Usually, however, it is the three-speed gear that is favoured, the middle gear being the normal and the others being 25 per cent. higher and lower respectively. Greater comfort has also been sought by the introduction of spring frames, spring forks, spring saddle-pins, and inflated saddles. Finality in the shape of the frame itself was long in being reached. The so-called gent's diamond frame has become so familiar that one is inclined to regard it as the permanent form. Originally made with top

tube sloping upwards towards the head, it is now made with the same tube sloping downwards, or horizontal. Numerous attempts have been made to replace it by a so-called triangulated frame, in which all tubes form the side of a triangle. The underlying principle of this kind of frame is that the triangle is mechanically a rigid figure, whereas the quadrilateral is not, and the quadrilateral frame therefore throws greater strain upon the lugs which unite the various tubes. Complete triangulation has, however, the disadvantage of producing a bicycle which is rather too rigid, and attempts to obviate this have been made by introducing curved tubes, an expedient that has not met with favour. Mention must also be made of the so-called cantilever frame, in which the principle of triangulation has been employed with good results, but this type is not popular. The lady's machine is of an unmechanical nature, with tubes bent in order to allow room for the skirt. Women cyclists, however, now favour a rational dress, consisting of breeches, stockings, and a light covert coat. The safety bicycle is now the normal type of velocipede, but the tricycle still has adherents. Tandem bicycles for two persons are also seen. An attempt was made some years ago to place on the market a tricycle for two persons, called the 'sociable,' with saddles side by side, but the



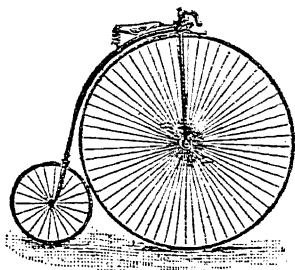
THE 'BONESHAKER,' 1870

machine did not hold its place. The development of the motor industry has naturally led to the introduction of the motor-cycle, for which the reader is referred to the article MOTOR-CYCLES.

Manufacture.—Generally speaking the manufacture of C. is a home industry, riders preferring machines made in their own country, as it is far easier to get worn-out parts replaced. At the end of last century an attempt was made to place large quantities of

American machines upon the Eng. market, but without lasting success, and British machines have now practically obtained a monopoly of the home market. The better grade British bicycle is sold in considerable numbers upon the Continent. There is also a large export from England to the colonies. The C. industry in England is principally carried on at Coventry, Birmingham, Nottingham, Wolverhampton, and London.

Cycling as a sport.—C. racing, both amateur and professional, was for many years a highly popular form of sport, and many tracks were laid down all over the country. The racing is controlled in England by the National Cyclists' Union, a body consisting of a number of affiliated



THE 'ORDINARY' BICYCLE, 1887

clubs, with a small private membership of its own. This body holds the amateur championships, defines the status of the amateur, and frames rules for contests. Similar clubs exist in Scotland and Ireland, viz. the Scottish Cyclists' Union (Glasgow), and the Irish Cycling Association (Dublin). The National Cyclists' Union, owing to the decline of C. racing, has developed along the lines of the Cyclists' Touring Club (*see below*). The decline of C. racing was to a great extent due to C. meets being used by the manufacturing firms, aided by 'makers' amateurs' and organised pacing teams, for the purpose of advertising particular makes of C. This difficulty was obviated by the Road Racing Council, and those taking part in races promoted by the Council were forbidden to use their events as advertising matter. The N.C.U. also deprecate the practice. There were further causes, however, to account for the decline of interest in cycle-racing. In long-distance events the winner owed his triumph more to possessing the best team of pacers than to his

own ability, while in short-distance events the fact that the leader set the pace for the others and was almost invariably beaten in the final sprint for the post led to a series of 'loafing' contests that soon damped public interest. Attempts to meet the latter difficulty were made by introducing the lap to lap contest, where the winner was determined by finding which rider led at most of the laps. The tendency was, however, more and more in the direction of holding road competitions, in which all forms of pacing were strictly forbidden. Professional races, in which high-power motor C. were used for pacing, were in greater favour on the Continent and in America than here, and surprising speeds were obtained. Another favourite branch of the sport is the attempt to establish road records between various points. The most famous of all such records is, perhaps, the Land's End to John o' Groat's House record. The distance is approximately 900 m., and was accomplished by H. Green in 1908 in 2 days 19 h. 50 min. Such a feat could, of course, only be performed by help of elaborate arrangements for feeding and securing fresh mounts where necessary, while the rider had to follow a carefully prepared schedule of times. Other road records are London to Brighton and back (F. W. Southall), 4 hr. 53 min. 20 sec. in 1927; London to York (J. W. Rositer), 9 hr. 40 min. in 1926; Edinburgh to London (R. Shirley), 23 h. 43 min. in 1905. The 12-hr. safety unpaced road record is held by A. E. Walters, who completed 349 m. 1447 yds., and the 24-hr. record by the same rider with 634 m. 774 yds. The World's Cycling Records for 5, 10, 20, 50, and 100 km. are held by L. Vanderstuyft, who has also won the hour record, completing 76 m. 504 yds. The official time for one mile is 61½ sec. by W. T. Hall, but the distance has been completed in less than a minute in competition with a railway train. Another favourite form of competition is the hill-climb, the best known among which is that organised by the Catford Club and held annually on Westerham Hill in Kent.

Cycling in warfare.—The cyclist before 1914 proved his military value rather by experience gained in manoeuvres than in actual warfare. His value is considerable where good roads are to be found. Cyclists are cheaper to maintain than cavalry or mounted infantry, are more easily trained, can cover longer distances at greater speeds, and are silent in their operations. In action no men are required to attend to the mounts,

but the whole force is available for action. On the other hand, they are of little use for cross-country work, being confined to the roads. However, they are of great value in conveying messages, in seizing quickly upon unoccupied positions, and in reinforcing weak columns. An early type of army cycle was the quadricycle, mounted with a machine gun, but solo cycles are now the general rule. The Fr. army have a cycle with folding frame which can be carried on the back when not in use. At the commencement of the Great War in 1914 the War Office realised the value of the cycle, and what had hitherto been a section attached to an infantry unit became the Army Cyclist Corps.

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Cyclitis, inflammation of the ciliary body. See EYE.

Cyclograph, also arcograph or curvograph. An instrument for drawing a curve without reference to the centre. It is usually formed of an elastic strip, which is adjustable to a given curve, and serves to transfer the latter to another plat or another place on the plat.

Cyclone. If a portion of the earth's surface becomes more heated than the surrounding parts, the air above this part will expand, rise, and spread outwards in all directions. Within this area the barometric pressure will be lessened and outside increased; so there will be a flow of air from the outside inwards, to the area of low pressure. As the inner air rises it becomes cooler and the moisture in it condenses, latent heat is liberated, and the ascending current becoming more rarefied increases the draught, moist air flows in an ever increasing volume, and so we have the beginnings of a storm. The area of low pressure with its winds is called a C. Cs. are never stationary, but move outwards in the direction of the prevalent winds. In the tropics their course is westward towards the poles, and in the temperate zones eastwards, with the anti-trade winds. The greater the difference between the pressure in the region of low pressure and the outer edge, the more violent is the storm. In the N. hemisphere the whirling motion of the C. is opposite

to the direction of the hands of a watch, while in the S. hemisphere it is in the same direction. In the centre of the C. there is a comparative calm, while as it moves towards the poles the region of low pressure gradually spreads until the storm dies away. Cs. move rapidly, while anticyclones move more slowly. They bring certain weather changes with them. As they approach halos form over the sun and moon, followed by dense cloud formations. Mist is succeeded by rain, which becomes heavier as the region of low pressure passes, and this is followed usually by cool, dry, bracing winds with a bright sky. See ANTICYCLONE.

Cyclopes (Gk. κύκλωπες, round-eyed, from κύκλος, circle, and ὤψ, eye), a fabulous race of classical mythology. According to Homer they were a lawless band of Sicilian shepherds, gigantic in size, who set Zeus at nought and caught and devoured human beings. Their king was Polyphemus, who had only one eye; hence the whole race were described by subsequent writers as one-eyed. According to Hesiod, they were three in number, their names being Arges, Brontes, and Steropes. They were the sons of Uranus and Gæa (or, according to Rom. mythology, Coelus and Terra), and were Titans. They were hurled into Tartarus by Chronos (Saturn), but they were delivered by Zeus, whose servants they then became, and for whom they forged thunderbolts and armour. They also fabricated a shield for Pluto and a trident for Neptune. Ultimately they were destroyed by Apollo, because they had forged the thunderbolt with which Zeus had killed Æsculapius. According to a later tradition, owing to their vicinity to certain volcanoes, they were regarded as the servants of Hephæstus (Vulcan), in whose workshops in Ætna, Lemnos, and Lipari they forged metal armour and ornaments for gods and heroes. The C. were regarded as gods, and a temple dedicated to their worship stood in Corinth. The impregnable walls of Mycenæ and of other Gk. towns were called 'cyclopean' on account of their strength. According to Strabo, the C. were builders from Thrace or Lycia, who settled in Argolis.

Cyclops, a genus of copepod crustaceans, represents the freshwater family Cyclopidæ. The species are very numerous and minute.

Cyclostomata (Gk. κύκλος, circle, στόμα, mouths), or Marsipobranchii, the name given to a class of vertebrate animals usually grouped with the Pisces, or fishes, but separated from them by various characteristic

features. The species are eel-like and generally marine, with a gristly skeleton, persistent notochord, scaleless skin, jawless suctorial mouth, straight intestine, simple tubular heart, and paired gill-sacs as the organs of respiration. The smooth skin is very slimy, and the suctorial mouth is used as an organ of attachment when the *C.* fix themselves to their prey. They dwell in the depths of the sea or in rivers, and are predaceous or parasitic in habit. The two best known species are *Myxine glutinosa*, the common hag-fish, and *Petromyzon fluviatilis*, the fresh-water lamprey. They occur in temperate regions of both hemispheres, are found fossil from Palæozoic times, and in length vary from a few inches to two feet.

Cydnus, a river of Cicilia, rising in Mt. Taurus and flowing past Tarsus and a broad lagoon, now choked up by sand, into the Mediterranean Sea. Its water was famous for its coldness, and Alexander nearly lost his life through bathing in it when overheated.

Cydonia, sometimes considered as a separate genus and sometimes included in *Pyrus*, belongs to the Rosaceæ. *C. vulgaris* (or *P. Cydonia*) is the quince, a plant which bears irregularly-shaped masses of fruits. These frequently adhere to one another owing to the mucus which invests them, and the seeds are used medicinally on account of the mucilage which they yield. *C.* (or *P.*) *Japonica* is another species, frequently grown as a wall-plant.

Cygnus ('the Swan'), a constellation, comprising about 200 stars visible to the naked eye, which lies between Pegasus and Draco. The N. Cross is formed by eight of the principal stars in *C.* The constellation, the brightest star of which is a Cygni (magnitude 1.6), contains many objects of interest, not the least being the star 61 Cygni, a star of the fifth magnitude. This star was the first to have its parallax (i.e. its distance from the earth) calculated. This was done by Bessel in 1838, who announced for it a parallax of 0.32". This has since been reduced to 0.24", which corresponds to a light-year distance of 13½.

Cylinder, the surface traced out by a line moving parallel to its original direction and always passing through the circumference of a curve. The term is also applied to the solid contained by the surface and two parallel planes intersecting it, and in particular to a right circular *C.* which may be described by the revolution of a rectangle about one of its sides. The *C.* is a developable surface, i.e. it

may be rolled out to form a plane surface. The section of a right *C.* formed by cutting the solid by a plane at right angles to the parallel surfaces is a circle, an oblique section gives an ellipse. The volume of a right *C.* is obtained by multiplying the area of the circular base by the height, that is, $\text{volume} = \pi r^2 h$, where $\pi = 3.1416$ (approximately), r = radius of base, and h = height. The area of the curved surface is obtained from the formula $2\pi rh$, or the circumference of the base multiplied by the height.

Cyilene, the anct. name of the modern Ziria, a mt. of Arcadia, in Greece. It is considerably over 7000 ft. high.

Cylon, an Athenian who lived in the seventh century B.C. He was victor at the Olympic games, and after that tried to make himself tyrant of Athens, taking possession of the Acropolis during a festival. He and his followers were closely besieged, however, and finally fled to the altar of Athena for refuge. Megacles persuaded them to leave this altar, to which they are said to have attached themselves by a string. On doing so they were murdered by their enemies at the altar of Eumenides, according to tradition, on account of the breaking of the string.

Cymbals (Lat. *cymba*, a hollow vessel), a pair of thin, round metal plates, hollowed in the centre, with a leather strap attached by which to hold them. The sound is obtained not only by clashing them together but by rubbing their edges. It is very loud and harsh and indefinite in pitch. In orchestras they are often used in connection with the bass drum. The original *C.* were probably very different in tone, with more of a bell-like sound. Their use is very anct.; they were known among the Egyptians, and were used by the Gks. in the worship of Cybele.

Cymbeline, a king of anct. Britain, who appears in Shakespeare's play of the same name, in which play he is the father of Imogen. Cunobelinus, who lived during the first century A.D., seems to have been the original of *C.* The former is mentioned in Holinshed's *Chronicles*, and coins bearing his name are still in existence.

Cyme, the botanical name given to an inflorescence in which each branch is stopped in its growth after producing a single flower, when it is forced to form lateral branches, which are themselves stopped after forming one flower.

Cymry, see CELTS.

Cynanchum, a genus or the order Asclepiadaceæ. *C. vincetoricum* is a native of sandy places on the Con-

tinant, and was once celebrated as an antidote for poisons. *C. monspeliacum*, or Montpellier C., contains a juice which is a drastic cathartic; *C. Argel* is a native of Upper Egypt, and the whole plant acts as a powerful purgative; *C. ovalifolium* is found in Penang.

Cynara, a Mediterranean genus of composite plants, contains the two well-known plants, the artichoke and the cardoon. *C. scolymus*, the artichoke, has long been cultivated as a kitchen-garden plant. *C. cardunculus*, the cardoon, is eaten like celery.

Cynaræ, one of the subdivisions of the order Compositæ. Its type is the genus *Cymara* (q.v.), and the species are noted for the intensely bitter principle of their active properties. *Carduus nutans*, the musk thistle, is the only species possessing much odour, and like *C. crispus*, it is a true thistle; *Carthamnus tinctoria*, the safflower, and *Serratula tinctoria*, the saw-wort, yield yellow colouring-matters, while from the flowers of *Centaurea cyanus*, the corn-flower, a blue pigment is obtained. *Arctium Lappa*, the burdock, has hooked involucre leaves, and its tender sprouts are eaten like asparagus in N. Europe; *Cnicus tuberosus*, a thistle-like plant, has edible and starchy tubers, and its ally, *Cnicus arvensis*, the plume-thistle, contains much tannin. *Onopordon acanthium*, the Scotch or cotton thistle, is used as an astringent in medicine; *Echinops sphærocephalus* has cathartic properties. *Carlina vulgaris* is the Carline thistle.

Cynewulf, an Anglo-Saxon vernacular poet, of whom very little is known. He appears to have been a Northumbrian, but the point is not certain. Dietrich has identified him with C., Bishop of Lindisfarne (737-80), though this supposition is opposed by Ten Brink. His works are attributed to the latter half of the eighth century. The only ones that can with certainty be ascribed to him are *Juliana*, *Crist*, *Elene*, and a fragment of *The Fates of the Apostles*, in each of which he has inscribed his own name in runes. He also appears to have been the writer of at least part of the *Riddles*, while the *Phoenix* is almost certainly his work. *Guthlac*, *The Dream of the Rood*, *The Descent into Hell*, and *Andreas* are also attributed to him, but their authorship is doubtful. The poet belonged to the Guild of Wandering Gleemen, and appears to have led a very varied existence, knowing both trouble and triumph. His works show great mastery of language and are rich in poetic fire and religious fervour.

They deal with biblical and religious subjects. See Grein-Wülker's *Bibliothek*, which contains the poems mentioned, 1831-98, and his *Grundriss der Angelsächsischen Literatur*, 1833-85; F. Holthausen's *Elene*, 1905; Stopford Brooke's *English Literature to the Norman Conquest*, 1898, which contains translations of the *Riddles*; and Dr. Carl Jansen's *Die Cynewulf-Forschung von ihren Anfängen bis zur Gegenwart*, 1908.

Cynics, The, a sect of Gk. philosophers, founded by Antisthenes, the disciple of Socrates, about 400 B.C. Their name is derived either from the place where they usually taught, the Cynosarges, or from the word κύων, 'a dog,' in derision of their morose, snarling principles, and intense scorn for all the conventions and even humanity at large, for the early Cynic virtue alone was the *summum bonum*, and therefore both learning and pleasure were things contemptible, and this doctrine led the decadent followers of Antisthenes, forgetful of the saving grace of self-control, to degrade human life to a mere brutish level. Diogenes of Sinope, Crates, and Zeno are representatives of the earlier, Demetrius and Demonax of the later school.

Cynodon, a small genus of Gramineæ, is found in Australia. *C. dactylon*, the dog's tooth, or Bermuda grass, is, however, world-wide in distribution, and in England grows on the shores of Devon and Cornwall. *C. linearis* is the durvagrass of the East.

Cynoglossum, a genus of tropical and sub-tropical plants belonging to the Boraginaceæ. All the species are coarse plants with small flowers unworthy of cultivation. *C. montanum*, a British species, grows in shady situations, by roadsides, and in hedges; *C. officinale*, the common hound's tongue, is a native of Asia, Africa, Europe, and N. America. The whole plant has a disagreeable smell, resembling that from mice, and was formerly used medicinally as a remedy in scrofula.

Cynoidea, one of the sections of the Carnivora (q.v.), and consists of dog-like animals. There is a single family, the Canidæ, and the species are distributed over the whole world, with the exception of New Zealand, and many of their fossil remains have been found. The fox, wolf, dingo, prairie wolf, and all varieties of dogs, wild or domesticated, belong to this group.

Cynomorium Coccineum, the single species of its genus in the order Balanophoraceæ, is a Mediterranean plant. By old herbalists it was called *Frungus melitensis*, and was valued for its astringent properties, but it

is now a rarity and an object of curiosity to botanists. The discovery of the medicinal properties of the parasitic plant dates from remote times, and in 1740 the knights of Malta set so high a value on it that they guarded the passage to the spot where it grew with the strictest jealousy.

Cynoscephalæ (dogs' heads), two hills of Thessaly in Greece, near Larissa. Here in 197 B.C. the Rom. consul, Flamininus, defeated Philip of Macedon.

Cynosure (Gk. *κυνόσουρα*, a dog's tail), the Gk. name for the constellation of the Little Bear, which contains the Pole Star. The Phœnician mariners steered their course by this constellation, while the Gks. steered by the Great Bear. The name has been transferred to anything attentively observed.

Cynosurus Cristatus, the crested dog's-tail grass, or gold-seed, is a well-known pasture-grass of the Old World, and flourishes in Britain. The roots penetrate a great way underground, and the plant thus remains green in dry weather when other grasses are burnt.

Cynthia (Gk. *Κυρία*), one of the many names of the Gk. goddess Artemis, and obtained from Mt. Cynthus. Identified by the Romans as Diana.

Cyperaceæ, an extensive natural order of glumaceous monocotyledons, having much the appearance of grasses. In England a large number of the species are called sedges, and are employed in the manufacture of 'rush' mats, and bottoms for chairs. Although allied to the grasses, they have scarcely any nutritious qualities, and are almost valueless as herbage. *Scirpus lacustris*, the bulrush, and *Cyperus papyrus*, the paper-reed, are common species.

Cyperus, a genus of the order *Cyperaceæ* which contains about 700 species of rush-like plants. They flourish in damp climates, need a great deal of water, and form a large proportion of the flora of cold regions. In the S. States the tubers or rhizomes are used as food for swine. *C. papyrus*, the paper-reed, furnished the writing-paper of anct. times known as papyrus.

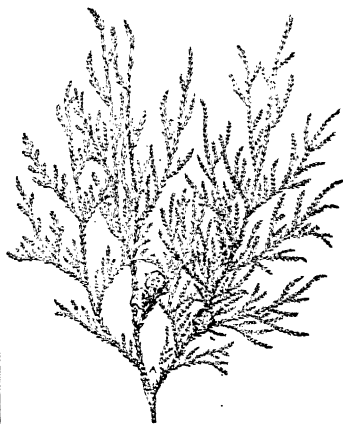
Cyphergat, a mining vil. of Cape Colony. It is situated S. of Moltene, and is principally engaged in coal mining.

Cypræidea, the family of gastropod molluscs which contains the cowry (*q.v.*). The species are often large and beautiful, and most of them dwell in warm seas. Besides the existing species, of which there are two or three hundred, fossil remains have

been discovered from the Upper Jura.

Cy-près, a term used in connection with charitable trusts or uses (*q.v.*). Where an instrument creating a trust discloses an intention to benefit charitable purposes generally, or, as it is called, a 'general intention of charity,' without mentioning any particular charity or charitable purpose; or specifies a particular charitable purpose which either cannot be carried out, as *e.g.* where an institution intended to be benefited has ceased to exist, or which does not exhaust the whole of the trust fund, the Chancery Division will itself declare the charitable purpose to which the trust fund or surplus (as the case may be) is to be devoted; and in so doing it will effectuate the settlor's intentions as nearly (*cy-près*) as possible. Where it is impossible to carry out any charitable purpose approximating to that in the mind of the settlor, the court may construe the settlor's intention by the light of other charitable trusts (if any) in the same settlement. See Strahan, *On Equity*; Snell, *On Equity*.

Cypress, or *Cupressus*, a genus of coniferous plants, of which all the twelve species are evergreen shrubs



YELLOW CYPRESS
(*C. Noolkatensis*)

or trees, and are natives of N. America, the Mediterranean, and Asia. *C. sempervirens*, the common or upright *C.*, is a plant of gloomy aspect but fragrant smell; it is sometimes cultivated in Britain, but the climate is too damp and cold for it to flourish.

It has been identified as the C. of the Scriptures, and the cross of Christ is believed by some to have been made from this tree; but, on the other hand, the Hebrew word for the C. of Scripture, *tirzah*, is derived from *taraz* connoting 'strength,' so that there is means of identifying it, and indeed the Hebrew word for C. is *berosh*, often translated cedar or fir. The variety *C. horizontalis*, the spreading C., is a more hardy plant than the common C., and its graceful spreading branches make it a beautiful object. *C. Lusitanica*, the cedar of Goa, is a drooping species, and its leaves have a singularly glaucous colour. *C. funebris* is a native of China and bears weeping branches; *C. Lawsoniana* grows in Upper California and yields good timber; *C. fragrans* is often cultivated, but occurs wild in N. America; *C. macrocarpa*, the Monterey C., is a hardy species found in California; *C. nootkatensis*, (from Nootke Sound), grows in N. America, attaining a height of over 100 ft.

Cyprianus, Thascius Cæcilius (c. 200–258 A.D.), an illustrious father of the Church, was b. of heathen parentage, but in 245 was baptised as a Christian. Like St. Francis, overcome by his passionate altruism, he freely gave all his wealth to the poor, so that the 'acclamation' and 'friendly violence' of the whole city obliged him in 248 to accept the important bishopric of Carthage, yet when the Emperor Decius began his ruthless persecutions in 250 C. was greeted everywhere with pagan cries of 'Cyprianum ad leonem,' so that he sought safety in flight. On Gallus's accession he returned to Carthage in 251, and was soon engulfed in grave theological discussions, such as the question of the re-baptism of heretics and the readmission into the Church of the *lapsi*, those who had fallen away during the recent persecutions. C. was inclined to view their lack of faith with lenience, whilst Novatian wished nothing less than their entire exclusion. From C.'s letters the reader obtains a lively picture of the struggle of the Christian Church in its infancy, and the bitter animosities aroused by questions of ecclesiastical doctrine and discipline, but also—what is surely of equal interest—an insight into the poetic feeling and tenderness of the writer, whose character has been so often misjudged. 'The pleasant aspect of the garden,' says C. on one occasion, 'harmonises with the gentle breezes of a mild autumn in soothing and cheering the senses; the neighbouring thickets insure us solitude; and the vagrant trailings of the vine branches, creeping in pen-

dant mazes among the reeds supporting them, have made for us a leafy shelter. 'Tis with delight that here we clothe our thoughts with words.' It is clear that in C.'s day there was no recognised supremacy for the Bishop of Rome, for he does not hesitate to dispute with his 'brother' Stephanus, and 256, at a synod in Cathage, he openly declared that he recognised no judicial authority of the Rom. over the other Christian bishops, who were substantially his equals. On the proclamation of Valerian as emperor in 258, C. was obliged once more to desert his flock. In the same year he bravely and gladly suffered martyrdom. 'God be thanked,' he cried on hearing his sentence. Thus he was faithful to his fine principle that 'a priest of God... may be put to death but cannot be overcome,' for he proudly refused to sacrifice at the emperor's bidding. His whole life was sanctified by the ardour of his faith and the nobility of his self-denial, whilst his death for Christianity effectually atoned for any earlier taint of cowardice. His *De Catholica Ecclesie Unitate* is of peculiar interest, as herein is first enunciated that the Christian Church is a hierarchy whose unity rests not on the episcopate of Rome but on that of the universal Church.

Cyprinidae, a very large and much subdivided family of fishes of the group Ostariophysi, is typified by the carp. The species are bony fishes with scaly bodies, naked heads, and no teeth. They are to be found in fresh water of the Old World and N. America, and about 1300 have been classified. Their diet is chiefly vegetarian, but a few are animal-feeders. The carp, goldfish, minnow, dace, loach, chub, roach, tench, and freshwater bream are a few well-known representatives of the family.

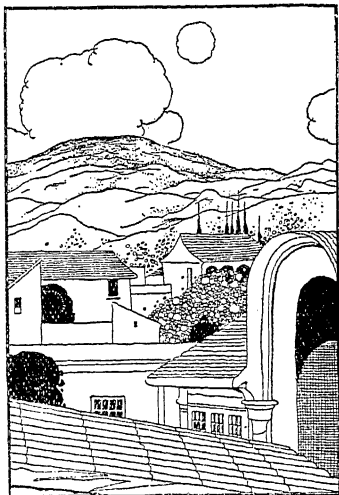
Cyprinodontidae, a family of pike-like fishes in the sub-order Haplomi, somewhat resemble carps, but have teeth in both jaws, no barbels, and the head and body are covered with scales. The most curious genus is *Anableps*, in which the iris of the eyes has two pupils; the fishes swim with the head half out of the water, and the lower pupil is adapted for sight in water, the upper for aerial vision.

Cypripedium, a genus of the Orchidaceae, contains over fifty species of graceful and beautiful plants, mostly inhabitants of N. America and N. India. They indulge in a curious method of pollination, which is effected usually by bees. *C. Calceolus*, the lady's-slipper orchid, is found rarely in woods of N. England. It has a creeping rhizome, broad ovate

leaves, and the perianth is reddish-brown in colour. The labellum, however, is yellow and slipper-like, the edges being turned inwards.

Cyprus, the third largest is. of the Levant in the Mediterranean, 60 m. W. of Latakia in Syria, and 46 m. S. of Cape Anamur in Asia Minor. With a length of some 145 m. and an average width of 45 m., its total area is about 3584 sq. m. The headland on the N.E., Cape St. Andreas, forms the extremity of a long and narrow peninsula. The extremely fertile plain of the Mesaoria stretches across the centre of the is. Once sheltered by dense forests, its surface presents to-day a bare and treeless appearance, broken here and there with curious rock tablelands from 100 to 200 ft. high. Of the S. and N. littoral ranges, the former, known as the Olympics, contains the higher summits. Thus Troódos attains an elevation of 6406 ft., the greatest in C. The N. system is divided into two chains, the W. and loftier, known as the Kyrenia Range, the highest peak of which is Buffavento (3140 ft.), and the E. or Karpas Range, which rarely reaches an altitude above 2000 ft. Mt. Adelphi (5305 ft.), Papoutsas (5124 ft.), and Chionia or Machaira (4674 ft.) are the other chief mountains of the S. chain, whose numerous spurs extend over a third of the is. in the S.W. The Pedia, which falls into the sea at Famagusta and waters the valley of Nicosia, and the Idalia both flow N. and then E. through the central plateau. In the N.W. the chief stream is the Sarákhis. But unfortunately these and the other waterways of C. are little more than mountain torrents, whose beds dry up in the summer time. Even the Pedia fails at times to reach the ocean, and the marshes formed from its stagnant waters give rise to malaria. Indeed fevers are prevalent among the natives in the low-lying quarters. But on the whole the climate of C., which is naturally Mediterranean in character, is fairly healthy. The winter, which extends from Oct. to March, is also the wet season, the mean annual precipitation being 19 in. Whilst the mean maximum temperature for a year is 78° and the mean minimum 57°, the average annual temperature is about 69° F. The is. is subject to earthquakes and to the devastations of locusts, for the increase in which the excessive deforestation is largely responsible. Forests still cover 400 sq. m., but in ant. times they were one of the chief glories of C., clothing every mountain ridge and all the plains with dense masses. The Gks. found the Aleppo pine, which, with other conifers,

largely predominates, excellent for shipbuilding. In the N., Eocene formations are prevalent, whilst in the plain of Mesaoria are many calcareous rocks alternating with Pliocene deposits. Archæan rocks form the mass of the Olympics, which yield gypsum, red jasper, a little silver and gold, asbestos and copper. Once C., which gives the modern name to the metal, was famous for its copper mines, but it is not found worth while to work them now. The chief metals obtained



CYPRUS: MOUNT TROÓDOS
(from Limasol)

for commerce are 'terra umbra,' gypsum, and salt, which is worked in the Limasol and Larnaca districts, where there are great salt lakes. But statuary marble is quarried on Buffavento, and a good building stone is quite widely distributed. Unfortunately agriculture is still very backward. Ignorance and prejudice prevent the cultivators systematically adopting such improvements as rotation of crops, modern implements and machinery, manure, fresh seeds, etc. Still fair crops of wheat, barley, oats, and vetches are grown. A good deal of the necessary irrigation is carried out by wells, but in 1899 and 1901, respectively, two schemes for irrigating by means of reservoirs were carried out, the larger enabling the flood waters of the Pedia and Idalia to be temporarily held up. By these

means 46,320 acres have been prepared for cultivation, and 10,360 acres actually reclaimed. Cotton, carobs, tobacco, flax, madder, the poppy, olives, and the vine are also grown, besides figs, oranges, citrons, and dates. The native wines, about 2,000,000 gallons of which are produced annually, are pure and strong, though not always agreeable to the taste. The practice of keeping the wines in tarred skins—a practice very injurious to their flavour—is now practically non-existent. The silk industry flourishes in the Paphos district, and the sponge fisheries are profitable. The Cyprian breed of mules is famous in the E., and there is an indigenous wild sheep known as the moufflon. The chief towns are Nicosia, the capital, in the interior, and the two ports, Limasol and Larnaca, both on the S. coast. Other towns on the coast are Kyrenia, Paphos, and Famagusta on the E. coast, near which is the anct. Salamis. The six administrative districts are Famagusta, Kyrenia, Larnaca, Limasol, Nicosia, and Papho. Lack of natural harbours, the seaports all having open roadsteads, militates against trade. But a good harbour was constructed at Famagusta at the same time that a railway was built to connect that town with Nicosia. The main roads between the various cities are good. Cable lines connect Larnaca with Alexandria in Egypt, and also with Latakia in Syria. Turkish weights and measures are current, but besides the Turkish 'lira,' bronze piastres (1½ penny), British coins, and the Fr. 20 franc piece are legal tender. A short résumé of the history of C. will serve to indicate the many vicissitudes through which the is. has passed. The Phœnicians colonised it about 2000 B.C., and much later the Gks. sent settlers to C. and instituted the worship of the Paphian Venus in place of that of the Phœnician Astarte. For a short time the is. passed into the hands of Amasis of Egypt, and in the same century, in 525 B.C., Cambyzes of Persia annexed it to his empire. Alexander, after his victory of Issus, affiliated the is. to his Macedonian kingdom, but on his death it was transferred to Ptolemy of Egypt. C. became a Rom. province in 58 B.C., and among its governors counted Cicero and Cato the younger. Paul, Barnabas, and Mark all visited the is., the Cypriotes being one of the first Gentile peoples to adopt Christianity. Under the E. or Byzantine emperors C. became the seat of an archbishopric. From 644, the year of Othman's conquest, until 975, the is. was devastated by repeated Arab invasions, that of

Haroun el Raschid, for a time successful, occurring in 802. From 1195 to 1487, the year when it entered the dominion of the Venetian republic, it was ruled by the family of Guy de Lusignan, who received the is. from Richard I., who conquered it on his way to the third crusade. From 1570 to 1878 C. was subject to Turkish rule, terrible massacres and wearisome sieges marking the early days of subjugation. A convention was entered into with Turkey on June 4, 1878, whereby the is. was to be administered by British rule. This held good until the outbreak of war with Turkey, when on Nov. 5, 1914, Britain completely annexed C. On May 1, 1925, C. was given the status of a colony, and its present governor (1930) is Sir Ronald Storrs. The Legislative Council is presided over by the Governor, nine appointed officials, and twelve members elected by popular vote, of whom three are Mohammedans and nine Gks. The elected members hold office for a period of five years.

In 1929 the Gks. on the Legislative Council instituted an agitation against British rule, making various allegations under the administration, and suggesting that the only remedy for their ills would be the union of C. once more to Greece, 'their mother-country.' They presented a memorial to this effect to Lord Passfield, Secretary of State for the Colonies, to which he replied on Nov. 28, 1929. He vetoed emphatically their return to Gk. rule, stating that the affairs of the is. so governed already were not efficiently enough administered for confidence to be reposed in them; he showed that for fifty years of British rule there had been no internal upheavals, and no external attacks; law and order had prevailed, strict and impartial justice had been administered; there had been no compulsory military service, and prosperity had not been affected by heavy direct taxation; and the elected members of the Legislative Council had expressed themselves in 1927 as more than satisfied with the British grant of £92,800 towards the Turkish Tribute on condition that Cyprus should pay a yearly sum of £10,000 towards the upkeep of Imperial defence. While the Gk. members professed that they voiced the opinion of five-sixths of the population, it is believed that their agitation was organised and financed chiefly by their church. The agricultural population did not desire the union and the townspeople felt only a tepid enthusiasm for this movement.

Bibliography.—C. D. Cobham, *Attempt at a Bibliog. of Cyprus*, 1929;

W. H. Engel, *Kypros*, 1841; H. R. Haggard, *Winter Pilgrimage*, 1901; C. W. J. Orr, *Cyprus under British Rule*, 1918; W. H. Flinn, *Cyprus, a Brief Survey of its History and Development*, 1924.

Cypselus (655-625 B.C.), a tyrant of Corinth, was, on his mother's side, connected with the family of Bacchiadae, who, having learnt from the oracle that this child was to bring about their downfall, sent messengers to murder him. They were unsuccessful, however, and he eventually succeeded in overcoming them and in making himself tyrant, ruling at Corinth for thirty years.

Cyrenaica, an Italian colony in N. Africa between Tripolitania and Egypt, with an area of about 230,000 sq. m. and a pop. of about 250,000, mostly Arabs, and Berbers, also several thousand negroes, 4000 Jews and 12,000 Europeans, nearly all Italians. The country is mostly desert, but is generally arable near the coast. Olives are cultivated in places, and there are date-palm oases. Great numbers of cattle, sheep and camels are reared, and barley is grown and exported to Eng. maltsters. There are plenty of jackals, and foxes, porcupines, moles and mice. The natives are fanatical Moslems, and include many adherents of the Senussi order, but the power of the latter has been destroyed by the Italians, who have claimed their territory since 1912. It flourished in antiquity owing to the trade with Central Africa, but that has been diverted through other channels. In 1930 80,000 Arabs with 600,000 head of cattle were forcibly transferred from the inland districts where they had tried to retain their independence to a stretch of territory on the coast where they can be controlled.

Cyrenaics, The, a school of philosophers, so called because their founder, Aristippus, was a native of Cyrene, where also their peculiar tenets were developed. Their school lasted down to the beginning of the fourth century B.C. Their articles of belief were drawn up, as it were, by Aristippus the younger. They denied the excellence of virtue, and as they regarded knowledge as immediate sensation, considered all logic and physical science waste of time. The C. were hedonists, after the manner of the Cynics. It was their pessimism which deterred men from accepting their ideals. Theodorus of Athens, Hegesias, who advocated suicide, and Arete, Aristippus' wife, were adherents of this school.

Cyrené, the cap. of the anct. Cyrenaica, Africa, which roughly cor-

responds with the modern Barca, was situated near the modern village of Grenna, S.E. of Cape Ras, a few miles only from the Mediterranean. A colony of Lacedaemonians under Battus founded C. in 631, and ruled it for some two centuries, when it became a republic. In 96 B.C. Cyrenaica, with the rest of N. Africa, became a Rom. province, and the miserable party struggles of the capital were effectually quelled. In the days of its prosperity C. numbered over 100,000 inhabitants, had a flourishing medical school, and was noted for its intellectual activities, and as the birth-place of Callimachus the poet, Carneades and Aristippus, the founder of the Cyrenaics, Eratosthenes, and the elegant Christian writer, Synesius. C. ruins of which remain to attest its former greatness, carried on a large trade with Egypt, Greece, and Carthage.

Cyrenius, a form, obtained through the Gk., of Publius Sulpicius Quirinus, who some time about the year A.D. 6 was made governor of Syria and then took a census of the Jews. St. Luke's statement, however, seems to imply that this event happened earlier, and there have been several explanations offered to account for the difference between sacred and profane history on this point.

Cyril (827-69), and Methodius (d. 885), two Christian apostles of Thessalonica. C. (Constantine Cypharas), surnamed 'the Philosopher,' and 'the Apostle of the Slaves,' was sent to preach to the Chazars, and later to the Bulgarians. He founded a school at Buda. While in Bulgaria he was taken prisoner, but was released about 862 by the intervention of M., his brother, whom he then accompanied to Moravia. The two invented the Slavonic alphabet, and are said to have been summoned to Rome for employing the Slavonic tongue in the church services. After an understanding had been arrived at with Pope Adrian II., C. remained at Rome, but M. returned to Moravia as archbishop of the church there. He appears to have become involved in quarrels with the Ger. clergy, in consequence of which he was again summoned to Rome in 879 and 881. After the latter date nothing is heard of him, and, in fact, the whole accounts of the lives of both C. and M. are meagre and contradictory.

Cyril, St. (A.D. 315-386), ordained bishop of Jerusalem in 351. It was the time of the Arian controversies, and as C. attempted to steer a middle course he was deposed in 358 by his metropolitan, Acacius, bishop of Caesarea, an action which was ratified two years later by the

synod at Constantinople. But he was reinstated in his bishopric on the accession of Julian in 361. Expelled again by Valens in 367, he finally returned to Jerusalem in 378, and attended the second oecumenical council at Constantinople and accepted the Nicene formula there promulgated. His *Χαρίσματα* (Instructions to Catechumens) contains a series of discourses addressed to candidates for baptism and a few to the newly baptised.

Cyril, St. (d. 444 A.D.), of Alexandria, a father of the church, after some years in the Nitrian desert, succeeded his uncle, Theophilus, as patriarch of Alexandria. Some measure of the responsibility for the atrocious murder of Hypatia has been attributed to C. by historians, though not by contemporaries. Nestorius, who refused to acknowledge the Virgin Mary as the Mother of God, was the victim of C.'s ceaseless persecutions. Anathematised in 430, he was condemned in 431 at the oecumenical council of Ephesus. C. himself was condemned by John of Antioch for his harsh treatment of Nestorius, both depositions, curiously enough, being ratified by the emperor, but C. was soon reinstated. A number of C.'s homilies are extant, besides his defence of Christianity (433).

Cyrrillus Lucaris (1572-1637), a Gk. ecclesiastic, was b. in Crete. He was a student at Venice and Geneva, in the latter place adopting the tenets of Calvinism. He eventually became patriarch of Constantinople, and to bring about the reform of the Gk. Church, kept up communications with the followers of Calvin in England and Holland.

Cyrus the Great (d. 528 B.C.), the founder of the Persian empire, was the son of Cambyses I., and the grandson of Cyrus I., and the fourth of a line of kings over Anzan or Elam. He thus belonged to a branch of the royal house of the Achæmenides. His boyhood is shrouded in a mass of legend. A grandson, as it seems, of Astyages, king of Media, C. in 549 B.C. captured Astyages and gained possession of his capital, the anct. Ecbatana. Three years later he was face to face with a great coalition of Egypt, Lydia; Babylon, and the little Gk. state, Sparta. But although the famous King Croesus of Lydia had forestalled him by invading Capadocia, C. early inflicted a crushing defeat on Croesus, captured his capital, Sardis, made Lydia a province of his Persian empire, and, according to Herodotus, was only prevented from burning the Lydian king alive by his admiration of his philosophy. C.'s next step was the subjugation of

the Carians, Lycians, and Ionians of Asia Minor, who, nevertheless, offered a stubborn and gallant resistance. In 538 B.C. the great Babylonian empire crumbled to pieces before the Persian conqueror. King Nabonidus of Babylon had been wont to pass year after year in idleness at his capital, whilst his son led the army in Akkad (N. Babylonia). It was in Akkad alone that C. met any serious opposition, for Babylon, without striking one blow for freedom, helplessly opened its gates to let the victor in. Nabonidus d. almost immediately after this, and C., who was a polytheist and Zoroastrian, proudly proclaimed himself a favourite of Marduk, the chief local god of Babel. With Babylon fell also the Babylonian provinces in Syria, so that the Jews were now under C.'s sway. In pursuance of his policy of religious conciliation he allowed the latter to return to Palestine and to rebuild their temple at Jerusalem, and for this generous act of deliverance from captivity he is referred to in the O.T. as 'the Shepherd and the Anointed of Jehovah.' It is also said that C. made successful military expeditions against the Bactrians and the Sacæ. There was thus considerable justification for his title, 'king of the world,' for his mighty empire extended from the confines of Egypt to the banks of the Indus and Jaxartes from the Persian Gulf to the S. of the Caucasus and Caspian on the N. C. was a splendid warrior, and no mean statesman; in his humanity he far outstripped his contemporaries, for he never sacked a city, and spared alike captive, kings, and people. The Gks. honoured his memory. Xenophon chose him as the hero of a treatise, and to the Persians he was always the 'father of the people.' His huge empire, which he had tried to organise under satraps, showed, however, no powers of cohesion the instant his dominating personality was removed.

Cyrus the Younger (424-401 B.C.), the second son of Parysatis and Darius, king of Persia. At sixteen he became satrap of Asia Minor. In 404 he plotted against the life of his brother, Artaxerxes Mnemon, who had just succeeded his father. His plot was prematurely discovered, and C. was sentenced to death, but pardoned on his mother's intercession. Later he entered into an alliance with the Spartans, and it was largely through his help that Lysander defeated the Athenians at Ægospotami. But again he conspired against his brother, and marched from Sardis inland with a great army of 100,000 Asiatics and 13,000 Gk.

mercenary. At Cunaxa he came in conflict with his brother's army. Unfortunately C. was slain, otherwise the victory would almost certainly have been his. Xenophon in his *Anabasis* speaks highly of C., both of his prudence, generalship, and liberality, as well as of his enthusiasm for Gk. philosophy.

Cysoing, a tn. 9 m. S.E. by E. of Lille, in the dept. of Nord, France. Here there are cotton and woollen manufactories, and a brewery, but C. is famous for its buildings of historic interest, including a ninth century church, once the chapel of an Augustinian abbey, and the ruins of an anct. Merovingian castle. Pop. 3150.

Cyst (Gk. κύστις, bladder), a term used in various ways for bladder-like formations. In zoology it is applied to the protective covering formed by lower animals at such times as a period of drought or immediately before passing into the resting-stage. The C. in which a young tape-worm usually becomes enveloped when in process of becoming a cystic or bladder-worm, is formed from the connective tissue of the animal in which it is residing.

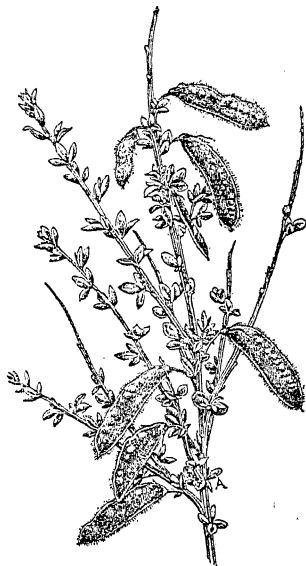
Cystopteris, a genus of Alpine and Arctic ferns in the order Polypodiaceæ. *C. fragilis*, the brittle or bladder fern, is common on rocks and walls in limestone districts of Great Britain; *C. montana* is found on hills of Scotland.

Cythera, the anct. name of the Is. of Cerigo (q.v.).

Cytinaceæ, an order of dicotyledonous plants, was established by Bentham and Hooker. All the species are leafless parasites without chlorophyll, and the flowers are either solitary or borne in a small, compact inflorescence. *Cytinus hypocistis* is a parasite found growing on the roots of certain kinds of Cistus in S. France, and in Fr. pharmacy the inspissated juice of the fruit is used as a styptic.

Cytisus, a genus of hardy papilionaceous shrubs, natives almost exclusively of Europe and the temperate parts of Asia, bearing ternate leaves and almost always yellow flowers. *C. purpureus* is an exception to the yellow-flowered species, and has lilac-coloured flowers. *C. (or Sarothamnus) scoparius* is the broom-plant so well known and loved on our heaths for the brightness of its golden blossoms; the leaves of the plant are greatly reduced, and the fruit has an explosive mechanism. *C. laburnum* (sometimes called *Laburnum vulgare*) is a small tree which is a common ornament of our gardens, and, like *C. Alpinus*, its branches are laden in spring with bunches of pendant

yellow flowers. They have a handsome, hard, olive-green wood, well adapted for the purposes of the turner. Both are natives of the Alps and are much alike, but *C. Alpinus* is the handsomer plant, and has broader and more shining leaves. The seeds of these species are dangerously poisonous, though most of the plants in this order are wholesome. The plant known as *C. Adami* is a curious example of a graft-hybrid, in



COMMON BROOM
(*Cytisus scoparius*)

which *C. purpureus* was grafted on to *C. laburnum*, and the upper part of the tree shows hybrid characters. The C. of Virgil was the *Medicago arborea* of botanists.

Cytology, the branch of science that deals with the structure and behaviour of the minute cells that make up the bodies of all living organisms. The simplest organisms consist of one cell only and are said to be *unicellular*; such are bacteria, amoebæ, and numerous aquatic plants and animals. Higher organisms consist of numerous cells and are said to be *multicellular*. The structure of a typical green flat cell is roughly as follows: Bounding the cell is a wall of *cellulose*, a sub-

stance familiar to everyone as the chief constituent of paper and cotton-wool. Lining this cell-wall is a layer of *protoplasm*, a colloidal (see COLLOIDS) substance and the actual seat of life. In the protoplasm are a number of bodies known as plastids, e.g. the *chloroplasts* containing the green colouring matter chlorophyll. The centre of the cell is frequently occupied by a watery liquid called the *cell sap*, and the space in which this liquid lies is a *vacuole*. Finally, embedded in the general protoplasm or slung to it by protoplasmic threads is a body composed of denser protoplasm; this is the *nucleus*. Animal cells do not contain chloroplasts and do not as a rule produce cell-walls, but, like plant cells, they all consist of (a) *nucleus* and (b) general protoplasm or *cytoplasm*. The cytoplasm contains granules known as *mitochondria*, while in animals small sections called *golgi bodies* also occur. Both mitochondria and golgi bodies play definite rôles in cell division, but the details are too complex to be considered here. A more obvious and presumably more important part in cell division is taken by the nucleus, which consists of a network of fine threads contained within a thin nuclear membrane. The nuclear material is readily stained by certain dyes, a fortunate fact that enables its nature and behaviour to be more easily studied. When the cell is about to divide, certain changes take place in the nuclear material, which sorts itself out into short thick pieces known as *chromosomes*, the number of which varies from organism to organism, but is always the same for the same organism except in the germ cells which have only half the normal number. In this way the normal number is restored at fertilisation, egg and sperm each bringing half the total chromosomes. The process of division of the nucleus is described as *mitosis*; it is roughly constant in its main stages throughout the animal and plant kingdom. When the chromosomes are ready, they each divide longitudinally into two, one half passing towards one end of the cell and the other to the other end. Here the half chromosomes reunite and form the two daughter nuclei, one at each of the opposite ends of the cell. After a time, division of the cytoplasm, that has been going on meanwhile, is also completed, and two cells are thus formed in place of the original one. The daughter cells in due course grow to adult size.

The careful division of nuclear material and the constancy of the number of chromosomes indicate that the problem of the transmission of

hereditary characters must centre in the nucleus. Modern research has indeed shown that the chromosomes appear to be the primary agents in this transmission, and there is evidence that a chromosome contains a number of independent factors or *genes* each of which is responsible for the transmission of particular characters. The investigations of Mendel (*q.v.*) and other biologists have conclusively shown that some such mechanical or material agency must be concerned in hereditary transmission, and breeding experiments extensively carried out by Morgan and others are making considerable advances in our knowledge of the subject. The determination of sex in many animals, including man, has been shown to be conditioned by the behaviour of a certain pair of chromosomes, but it is probable that further factors are normally involved. In any case, the detailed study of the cell is one of the most promising fields of present-day biological research, and the behaviour of cells under the artificial conditions of the laboratory is likely to produce results of immense practical, as well as theoretical, importance.

See the articles on BIOLOGY and CELL; and E. B. Wilson, *The Cell in Development and Inheritance*, 1925; L. Doncaster, *Cytology*, 1920.

Cyzicus, the anct. name of a peninsula, about 9 m. in length, projecting out from the S. coast of the Sea of Marmora, 70 m. S.W. of Constantinople. Once an island, it was famous in anct. times for the splendid city of Cyzicus, described by Strabo, which was finally destroyed by the Arabs in 675. Originally C. was colonised from Miletus, in 756 B.C. As late as 1444 there were still standing thirty-one columns of the magnificent temple of Hadrian. The Turks call its mountains (2500 ft.) Kapu-Dagh. Earthquakes again and again devastated C.

Czar, title of the emperor of Russia prior to the Great War, and of the king of Bulgaria, derived from the Latin *Cæsar*. See TSAR.

Czarnecki, Stephen (1599-1665), a Polish general. In 1654 Poland was invaded, and C. distinguished himself by strenuously defending Cracow, which he was compelled eventually to surrender to Gustavus Adolphus. He was victorious, however, in successive battles against the Russians and Swedes, notably at Koziencice, and finally gaining a decisive victory at Polonka, 1660. He was rewarded for these services, being placed in a position of high honour by the king, but d. very shortly afterwards while on a campaign against Russia.

C. is sometimes known as 'the Polish du Guesclin.'

Czartoryski, Adam Georg, Prince (1770-1861), a Polish revolutionary leader, b. at Warsaw; spent part of his boyhood in England and studied at the University of Edinburgh. In 1793 he returned to Poland and enlisted under Kosciuszko. After the failure of this leader, C. was sent to Russia as a hostage, where he gained the favour of the Grand Duke Alexander and the Emperor Paul, who made him ambassador to Sardinia. In 1801, on the accession of Alexander, he became assistant to the Minister of Foreign Affairs, and in this capacity in 1805, subscribed the treaty with Great Britain. He was curator of the University of Vilna for some time, and used all his powers to foster Polish national feeling, resigning when some of the students were transported to Siberia for sedition. In 1830, at the outbreak of the Revolution, he joined the Poles and devoted all his energies to the cause. He was appointed president of the provisional government, and as such summoned to the Diet which met in December 1830. In January 1831, the Diet, having declared the Polish throne vacant, made C. head of the national government. He gave liberally, both of his money and personal services, and after the defeats of August, served as a common soldier. He was excluded from the amnesty which was proclaimed on the Russian victory, and escaped to Paris, where he still remained a centre of Polish national life.

Czaslau, a tn. of Czechoslovakia, 40 m. E.S.E. of Prague by rail. Its high-steeped church contains the tomb of John Zižka, the Hussite leader, to whom there is erected a conspicuous monument in King Square. C. was the scene of a victory in 1742 of Frederick the Great over the Imperialists. Pop. about 10,000.

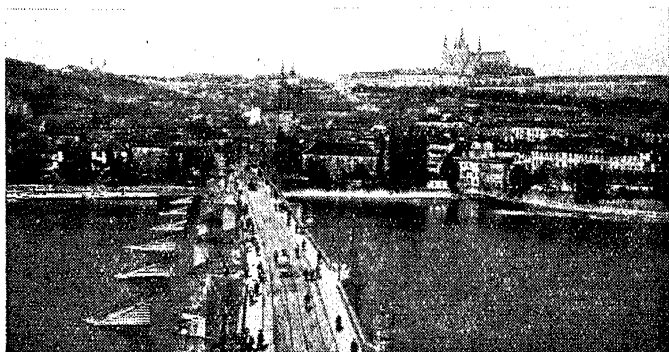
Czechoslovakia, an independent democratic republic, situated in Central Europe. The area of C. is 54,195 sq. m., and its frontiers, bordering on Austria, Germany, Poland, Hungary and Rumania, were fixed in 1919 by the Treaty of St. Germain and the two Treaties of Versailles. The constituent territories of C. are Bohemia, Moravia and part of Silesia, formerly under Austrian rule, and Slovakia and Carpathian Ruthenia, formerly under Hungarian rule. The early history of C. is that of Bohemia (*q.v.* and see also **CZECHS**), and the memory of that former political unity, the kingdom of Bohemia, was the urge to such men as Masaryk, Beneš, Kramář and Štefánik to found a similar political

unity on the lines of a modern republic. At the outbreak of the Great War the Czechoslovaks (this joint name had been in current use since 1880) found themselves impressed into the service of Austria, while their sympathies were with the Allies, their political ideals being opposed to a pan-German domination of Central Europe. Many Czech detachments in the Austrian army went over to the side of the Serbs, and the exploits of the Czechoslovak army in Siberia commanded the admiration of Europe. It was Masaryk who began the formation of Czechoslovak legions which served voluntarily with the Allied armies, and this, together with Masaryk's own writings and speeches and scrupulously honest propaganda, convinced England, France, Italy, and America of the reality of the Czech claims to national independence. A Czech National Council was formed at Paris, and at the Peace Conference this was recognised as the responsible Govt. of a belligerent nation with a right to be represented. Czechoslovak unity, however, was not a factitious result of the Peace Conference. The union of the two Slav races had for long been an ideal, and after the collapse of the Hapsburg monarchy it became an accomplished fact. In Jan. 1918 an all-Constituent Assembly, held in Prague, was followed in April by a congress of oppressed nationalities which met in Rome. In Oct. a bloodless revolution placed the administration of Prague in the hands of the National Council, and an Assembly, convened on Nov. 14 in Prague, elected Masaryk as President of the new republic, Kramář as Premier and Beneš as Foreign Minister. A provisional constitution was drawn up, and the National Assembly, formed after a General Election on Feb. 29, 1920, passed this constitution and formally ratified President Masaryk's election for a period of seven years. In 1927 he was re-elected. Beneš represented C. at the Peace Conference and pleaded successfully for the recognition of C. as a national unity. The Slovaks, the former victims of Magyar domination, have free and equal rights under the new constitution, although they are not as advanced as the Czechs, deliberate retardation having been part of the Magyar policy. The most backward of the races formerly governed by Hungary were the Ruthenians, inhabiting sub-Carpathian Ruthenia, a part of Little Russia. In 1918 they petitioned for an autonomous union with C., and this was ratified at the Peace Conference. A 'Little Entente' was

formed and renewed in 1929 between C., Yugo-Slavia and Rumania to resist possible Magyar or Bolshevik aggression and to promote trade on the Danube. An agreement with respect to common interests was made in 1924 between France and C. The German and Magyar minorities in C. enjoy equal citizenship with the Czechoslovaks. Of the total pop. of 13,613,172 by the 1921 census the Czechoslovaks numbered 8,760,937, the Germans 3,123,568, the Magyars 745,431, the Ruthenians 461,849, the Jews 180,855, the Poles 75,853, and others, including non-citizens, 264,679. A 1930 census gives the pop. at 14,726,170. The people are repre-

sented by twelve political parties, important among which are the agrarian parties, since nearly 40 per cent. of the pop. is agricultural. There are nearly 4 million farms, and in 1923, 465,000 acs. of land were divided into small holdings. Agricultural produce includes wheat, rye, barley, oats, maize, potatoes, and sugar-beet, totalling over 20 million metric tons annually. Sugar-beet is an important industry, and hops are cultivated, the beer brewed at Pilsen being world-famous. Large tracts of country, 11,496,864 acs., are entirely forest. Mineral wealth includes coal, iron, copper, lead, graphite, gold, silver, and garnets. Prague (Praha) is the capital city of C. (pop. 851,000) and a centre of culture, having a Czech, German, Ukrainian, and a Russian university. Education is now compulsory, and illiteracy almost eliminated. Culture is, indeed, the cornerstone of the republic. President Masaryk (q.v.), to whose genius C.

owes its liberty, is himself a writer and philosopher of international reputation. An uncompromising realist, he has influenced Czech art in that direction, and both poetry and the novel of C. are realistic, although in the former the stark realism of J. S. Machar (b. 1864) becomes humanitarian with the younger post-war poets. In 1883 the National Theatre was founded at Prague, and this gave an impetus to drama, which produced such men as Karel and Josef Capek. Painting, sculpture and architecture also flourish, but the art of which the Czechoslovaks may be most proud is music. On the foundation of a rich folk music a



PRAGUE

[Courtesy of Consul of C. at Montreal.]

sented by twelve political parties, important among which are the agrarian parties, since nearly 40 per cent. of the pop. is agricultural. There are nearly 4 million farms, and in 1923, 465,000 acs. of land were divided into small holdings. Agricultural produce includes wheat, rye, barley, oats, maize, potatoes, and sugar-beet, totalling over 20 million metric tons annually. Sugar-beet is an important industry, and hops are cultivated, the beer brewed at Pilsen being world-famous. Large tracts of country, 11,496,864 acs., are entirely forest. Mineral wealth includes coal, iron, copper, lead, graphite, gold, silver, and garnets. Prague (Praha) is the capital city of C. (pop. 851,000) and a centre of culture, having a Czech, German, Ukrainian, and a Russian university. Education is now compulsory, and illiteracy almost eliminated. Culture is, indeed, the cornerstone of the republic. President Masaryk (q.v.), to whose genius C.

national opera was created by Smetana (1824-84), while Dvořák (1841-1904) was also a composer of the front rank. The national life of C. more than that of any other country is bound up inextricably with its art, and nothing has contributed so much to political freedom as the artistic expression of national ideals. Biblio.—A. Matejcek and Z. Wirth, *Modern and Contemporary Czech Art*, 1924; V. Nosek, *The Spirit of Bohemia*, 1924; T. Capek, *The Origins of the Czechoslovak State*, 1926; T. G. Masaryk, *The Making of a State*, 1927; P. Selver, *Anthology of Czechoslovak Literature*, 1929; C. J. C. Street, *President Masaryk*, 1930.

Czechs, or Tschechs, etc., a Slavic people of whom there are now well over 8,000,000 in Czechoslovakia. Once they dwelt along the banks of the Upper Vistula in Carpathia, but about A.D. 475 they swarmed across to the country now known as Bohemia.

As early as the ninth century their name was applied to the entire Slav population of Bohemia, as they had conquered or absorbed all the other Slavic tribes that migrated with them. C. are found also in Russia, and the United States, where newspapers are printed in their language. In the nineteenth century this people, under the leadership of Joseph Dobrovsky, revived their language, which was growing extinct. This revival, which led to the foundation of C. schools and a C. university, was responsible also for the institution of a national or C. political party in 1848.

Czegled, a tn. 18 m. N. by E. of Keeskemet, in Hungary, and a junction for many railways. Pop. 36,900.

Czenstochowa, a tn. of Russian Poland, is situated in the government of Piotrkow. on the R. Warta, or Warthe, close to the Silesian frontier. The manufactures carried on here are chiefly those of cotton and woollen goods. This town, which is an old one, is especially noted for its convent, in which is kept a picture of the Virgin, which is treated as a relic and visited by 200,000 pilgrims every year. Pop. about 80,370.

Czermak, Jaroslav (1831-78), a Bohemian artist, b. at Prague. He studied art in Antwerp, Brussels, and Paris, and his first pictures dealt with incidents in the history of Bohemia, his own country: among these pictures being 'Rudolph II.'s begging Court-Poets, the most famous of his works dealing with such subjects. After travelling in the Near East in 1858, he painted pictures dealing with incidents and subjects with which he had become familiar there. Among those pictures may be mentioned: 'A Montenegrin Woman and Child,' 'The Turks seizing a Herzegovinian Woman.'

Czernin von Chudenitz und Morzin, Ottokar, Count, Austro-Hungarian Foreign Minister; b. at Vienna, Sep. 26, 1872, scion of a noble Czech family. Entered Austrian Upper House, Feb. 1912. In Oct. of that year, he went as Minister to Bucharest, whence he endeavoured to induce his govt. to secure a Rumanian alliance. In 1916, having kept Rumania out of the war until then, he returned to Vienna to succeed Burian as Foreign Minister. His communications with Germany always urged efforts for peace, and he was aware that offers were being made to France by his own emperor through Prince Sixte of Parma in 1917. Also, when the Brest-Litovsk negotiations with Russia were in progress, his disagreement with the German attitude was pronounced. At the beginning of

April 1918, C. stated, in a speech to the Vienna municipality, that he had, before the recent German offensive, received offers of peace from the Fr. premier. M. Briand, upon the speech coming to his notice, declared that Count C. lied. In the controversy that followed, the story of the offers made by the Emperor Charles (q.v.) came out. As a result, Charles was obliged to obtain C.'s resignation, which was forthcoming April 15. C. had already become unpopular with the German element at home, on account of his cession of the Ukraine of the district of Chelm, a cession



KARL CZERNY

which, however, was justified by the dire necessity of obtaining corn supplies. In the great and impossible task of holding together the Dual Monarchy during the Great War, C. played, together with Count Tisza, the leading part. Consult Von Glaise Horstenau, *Collapse of Austria-Hungary*. English transl. 1930.

Czernówitz, a city of Rumania. Overlooking the R. Pruth, it is built on a hill, varying in altitude from 520 to 950 ft., round which stretches a marshy country. Besides the fine episcopal palace (completed in 1875), C. has a Greek Orthodox Cathedral (finished in 1864), controlled by an archbishop; a Rumanian, formerly German, University, and an Armenian and Jesuit Church. It is a clean, attractive, modern city, with considerable commerce in agricultural produce, cattle, wood, and spirits, and a very cosmopolitan population consisting of Germans, Ruthenians, Rumanians, Poles, Armenians, Jews, and Gypsies, in all 69,619 people.

Czerny, George (1766-1817), a Serbian, who belonged to the poorer classes of that country. He constituted himself leader of the Serbians against the Turks, owing to the cruelties practised by those people, and eventually, in 1806, succeeded in making himself master of Belgrade, having been secretly helped by the Russians. He was afterwards recognised as the ruler of Belgrade. About the year 1812, however, the Russians were unable to aid him, owing to their being involved in war themselves, and he was defeated and obliged to flee into Austria. His rival, however, during his absence, was Milosch Obrenowitch, who, on C.'s

return to Serbia, had him murdered, Obrenowitch himself having assumed the leadership of the Serbians.

Czerny, Karl (1791-1857), a composer and musician, was b. at Vienna. He was a student of Clementi and Beethoven, and was the instructor of other famous musicians, among them Liszt. He began to write at an early age, and his manuscripts for the piano comprise masses, requiems, graduals, and many other kinds of musical compositions.

Czersk, a vil. of Poland, Pop. 7000.

Czortkov, a tn. 37 m. S. by E. of Tarnopol on the Sereth, Poland. There are tobacco factories and an old castle. Pop. 5200.

D

D, the fourth letter of the English alphabet, occupies a similar position in Phœnician, Greek, and Latin, from which it is successively derived. The original symbol in the Egyptian hieroglyphics represented a hand. The Semitic *daleth* means a 'door,' a name which probably indicates the resemblance, traceable in the Greek Δ, to the triangular opening of a tent. Two sides of the triangle are run together in D, and the triangular origin is easily discernible in the other forms of the letter. The sound of D is the soft dental mute, though really not a true dental in English, being sounded by placing the tongue against the top of the gum.

D, in Roman notation signifies 500, being half of the symbol CIO (1000), which itself was possibly taken from the Greek φ. **D** stood for 500,000.

D, in music, is the second note of the natural scale. The key of D major contains E \sharp and C \sharp , and its relative minor is B. The key of D minor has B \flat , and is relative to the major key of F.

Dab, salt-water fluke, or *Pleuronectes limanda*, a fish which is closely allied to the plaice and flounder in the Pleuronectidæ, or flat-fish family. The names of smear, lemon, or smooth dab are often given to *Pleuronectes microcephalus*, the lemon sole.

Dabchick, or *Podiceps fluviatilis*, a small species of grebe which inhabits the Old World and Europe, and in Britain frequents lakes and streams.

D'Abernon, Sir Edgar Vincent, 1st Viscount and Baron, of Esher and Stoke D'Abernon, British diplomat; was b. 1857, at Slinfold, Sussex; youngest son of Sir Frederick Vincent, 11th Bart. Educated at Eton. Passed exam. at head of list for appointment of student-dragoman at Constantinople, 1877; but, instead, joined Coldstream Guards and resigned, as lieutenant, 1882. Private secretary to Lord Edmond Fitzmaurice, Commissioner for E. Rumelia, 1880. Assistant to H.M. Commissioner on Evacuation of Thessaly and Epirus, 1881. British, Belgian and Dutch representative on Council of Ottoman

Public Debt, 1882—President, 1883. Financial adviser to Egyptian Govt. 1883–89. Governor Imperial Ottoman Bank, Constantinople, 1889–97. Conservative M.P. for Exeter 1889–1906; contested Colchester, 1910. Member of Royal Commission on Imperial Trade, 1912. Chairman of Dominions Royal Commission, 1912–17. Made Baron D'Abernon, 1914. Chairman, Central Control Board (Liquor Traffic), 1915–20. British representative on Special Anglo-French Mission to Warsaw, 1920. Ambassador to Berlin, where his financial experience was of great use in the matter of the Dawes Plan (*q.v.*), 1920–26. Chairman of Industrial Fatigue Research Board, 1926. Chairman of Royal Commission on National Museums, 1927. In 1929 he headed an Economic Mission to the Argentine for the improvement of British trade with that nation. Publications:—*A Grammar of Modern Greek*, 1881 (adopted by the Univ. of Athens); *Report on the Financial Administration of Egypt*, 1884; *An Ambassador of Peace* (pages from his diary, vols. I. and II.), 1929.

Dabhoi, a tn. of India in the state of Baroda. It contains a stone temple, rich in sculpture, and also a stone water cistern, notwithstanding the fact that there is a singular lack of stone in the district. Pop. 15,870.

Dabœcia polifolia, or *St. Dabeoc's Heath*, a bushy evergreen shrub of small size, well fitted for planting in shrubberies and rockeries. It flourishes in Ireland and the Pyrenees.

Da Capo, or **D.C.**, in music, placed at the end of a movement as a direction to return to the beginning of the movement and finish where the word 'Fine' is placed. The term is often *Dal Segno*, i.e. repeat from the sign :S: only.

Dacca, a tn. of India, 270 m. N.E. of Calcutta, with a pop. of 119,450. It extends for 4 m. along the N. bank of the Buribanga R. There are many important buildings; the palace of the Nawabs of Dacca, the Bank, Commissioner's office. English church, Baptist Mission buildings and the Rom. Catholic cathedral. A

mysterious sound called the Barisal guns is said to be caused by a gun lying at the bottom of the river calling to its ancient mate, which stands on the Buckland Bund. The Lal Bagh fort, built in 1678, is the most picturesque monument of D., which from 1905 to 1912 was the cap. of the prov. of E. Bengal and Assam. The university has 1170 students. D. is still the largest civil station in Bengal outside Calcutta. It has the atmosphere of a romantic past and very good bazaars. Muslins are made here and silver filigree work and buttons. Pop. of dist. 3,126,000.

Dacca, University of, was established on July 1, 1921, on the lines of the later English universities, but with residential facilities. No distinction of race, sex, creed, or class is observed, but special attention is given to Islamic studies and the educational requirements of Moslems. The faculties include arts, science, and law. There are well-equipped laboratories for chemistry, physics, and psychology; more than 100 acs. of playing fields; three residential halls; five buildings; and a library of more than 50,000 books.

Dace, Dart, or Dare, the popular names of the carp-like fish *Leuciscus vulgaris* of the family Cyprinidae, allied to the club, roach, and minnow. It is a native of Europe and is found in deep, clear water in shoals. The average weight is less than 1 lb. and the length 8 in., but the fish is much sought after by anglers.

Dach, Simon (1605-59), a German lyric poet and hymn writer, was b. at Memel. Though poor he received a good education, and graduated at Königsberg University. Gaining considerable reputation as a lyric poet, he was appointed Professor of Poetry at Königsberg (1639). One of his best known poems formed the original of Herder's *Annchen von Tharau*.

Dachshund, a badger-dog that came into England from Germany. It is not a fighter, but is a good house-dog. In sport it finds the fox or badger, but does not come to close quarters with them, merely barking incessantly until the hunters come up. The D. has a soft and silky coat, a very long body, the length from the back of the head to the root of the stern being two and a half times the height of its shoulder. Its colour varies, but much white is not desirable. Its other points are: Head long and narrow, with rather small, very intelligent eyes; ears long, broad, and silky, set low and carried back and close to the head, measuring from 13 to 14 in.; jaw strong and square; chest deep and narrow, with a prominent breast bone; forelocks

very short and sturdy, well crooked; hind legs smaller in bone; feet strong and well padded; skin thick, loose, and supple; coat short and strong; loin well arched and muscular; body long and low but not cloddy. Its weight is about 21 lb., a bitch about 18 lb.

Dacia, in ancient times the name of an extensive dist. N. of the Danube, corresponding roughly with the modern Rumania, Transylvania, and part of Hungary. Its inhabitants, the Daci, or Getæ, were a warlike tribe of Thracian origin. They began to trouble the Romans in the time of Augustus, and in the reign of Domitian, under their king, Decebalus, the Dacians forced their more civilised enemies to buy them off with an annual payment. After a war lasting from 101 to 106 A.D., the Emperor Trajan made D. a Roman prov., but it was abandoned by Aurelian about the year 275 A.D.

Dacier, André (1651-1722), a Fr. classical scholar, b. at Castres, Upper Languedoc. He was made librarian at the Louvre in 1694; became a member of the Academy of Inscriptions (1695), and of the Fr. Academy, being appointed in 1713 perpetual secretary to the latter. His works include editions of Festus and Verrius Flaccus, and translations of Horace, Aristotle's *Poetics*, Sophocles, Epicætus, etc. His wife, Anne Lefèvre (1654-1720), edited Callimachus, Florus, Aurelius Victor, Eutropius, and the history which goes by the name of *Dictys Cretensis*, all of which have been repeatedly reprinted with her notes. She published Fr. translations of the *Amphitryon*, *Rudens*, and *Lepidicus* of Plautus, with a good preface; of the comedies of Terence; of the *Plutus* and the *Clouds* of Aristophanes; and of Anacreon and Sappho. She also translated the *Iliad* and the *Odyssey*, with a preface and notes.

Dacites (from Dacia, *q.v.*), a class of volcanic rocks found in Dacia, Greece, N. America, and elsewhere. These rocks consist largely of felspar mixed with quartz, hornblende, and augite; their structure is sometimes crystalline and sometimes vitreous. The older D. are often called 'porphyrites.'

Dacoits (Hindustani *dakaiti*), members of armed gangs organised for robbery and murder. In 1887 there were reported to be over 9000 professional D. in India, and in one district alone (Gwalior) they murdered forty-six persons. After the war with Burma (1885), dacoity was prevalent in that country for several years.

Da Costa, Isaac (1793-1860), a Dutch poet and theologian of Jewish descent, was educated at Amsterdam

and Leyden. His first great poem, *De Verlossing van Nederland*, appeared in 1814, and seven years later a collection of romantic poems, *Poezy*, placed him in the front rank of national writers. In 1822 he became a Christian, and was thenceforward an ardent supporter of his adopted faith, writing many theological as well as poetical works. He also translated the *Persians* and *Prometheus* of Æschylus, and edited the poems of Bilderjijk, his literary foster-father.

Dacotahs, a league of American Indian tribes who inhabited the northern part of the Mississippi-Missouri basin, and after whom the states of Dakota are named. Their confederacy included seven 'nations,' the principal being the Sioux. They are believed originally to have been agriculturists until the introduction of horses, when they became rovers and hunters. In the wars of 1862 and 1876, brought on largely by the breaking of engagements by the U.S. government, thousands of Sioux perished, and in the latter campaign General Custer and a whole brigade were annihilated.

Dacrydium, a genus of Coniferæ indigenous to Malay, Tasmania, and New Zealand, and several species are grown in Britain on account of their graceful appearance. *D. Franklinii*, the Huon pine, has more characteristics of the yew than the pine, and grows in Tasmania; *D. cupressinum*, the commonest species in England, bears an edible fruit; *D. taxifolium*, the kakaterra tree, is valued for its timber.

Dactyl (Gk. *δάκτυλος*, a finger), in Latin and Greek prosody, a foot consisting of one long and two short syllables; in English prosody, one accented and two unaccented syllables. Dactyls, in prosody, is a name applied to metres which consist of a repetition of dactyls, or of equivalent feet.

Dactylis glomerata, the cock's-foot grass, a species of Graminæ constituting a genus in itself. It is extremely common in fields and waste places of Britain during most of the summer months, and is also well known over Continental Europe, the Mediterranean, and Asia. In a wild state it has a coarse bluish herbage, and is capable of enduring the drought of dry, sandy land, and forms good grass for pasture.

Dactylogy, see DEAF AND DUMB.

Dactylopterus, a genus of Cephalacanthidæ, or flying gurnards, remarkable for the immense, fan-like pectoral fins possessed by its species, and used by them when they spring into the air to escape voracious fishes.

D. (or *Cephalacanthus*) *volitans* occurs in the Mediterranean; *D.* (or *C.*) *orientalis* in the seas of warmer climates.

Daddy-longlegs, see CRANE-FLY.

Dado, in classical architecture, the cube at the base of a pedestal. The name is also commonly applied to a series of mouldings, forming, as it were, a continuous pedestal, lining the lower portion of the interior walls of a building.

Dædalus, a figure in Greek mythology whose name is associated with the beginnings of sculpture and architecture. He was said to have been a descendant of Erechtheus, King of Athens, but the legends concerning him seem to be Cretan in origin. He is credited with making a wooden cow for Pasiphaë, wife of Minos, the King of Crete, and also with constructing the labyrinth for the Minotaur. Incurring the displeasure of Minos, D. made wings for himself and his son Icarus to fly from Crete. Icarus fell into what came to be known as the Icarion Sea, but D. reached Italy safely, and thence proceeded to Sicily. This story is possibly connected with the fact that D. was the reputed inventor of sails for ships. Many buildings and statues were attributed by the later Greeks to him, and his name is representative of the time when wood was the chief material in use.

Daet, a pueblo (township) in the S. of Luzon Is., Philippines. Port of call on the mouth of the Daet R. Pop. 13,500.

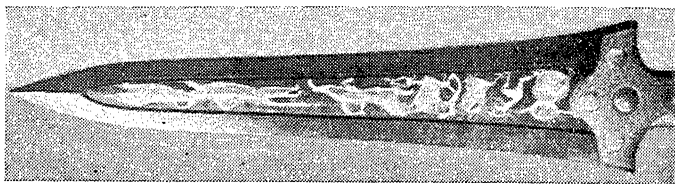
Daffodil, or *Narcissus*, the name of many species of the order Amaryllidacæ which have a well-developed corona. *N. pseudo-narcissus* is the common daffodil or Lent-lily, a beautiful yellow flower which has a long and graceful hollow stem. This species is to be found wild in most parts of Europe, Britain included, and in a cultivated state it is often seen double. *N. corbularia* is known as the hooped-petticoat daffodil.

Dagami, a pueblo on the Binahaan R., S. of Tacloban, Leyte Is., Philippines. Is an important centre for traffic. Pop. 13,000.

Dagenham, an urban dist. in co. Essex, England, consisting of Chadwell Heath Ward, Becontree Heath Ward, and Dagenham Ward. The Becontree Estate consists of a large number of houses erected by the London County Council. The church is ancient, with a fine old tomb of Sir T. Urswyk, M.P. for London in 1461. There is a smallpox hospital. A high tide flooded 1000 acs. of land on Dec. 7, 1707. There is much marsh land. On May 16, 1929, Mr. Edsel B. Ford of America cut the first sod

for the new works of the Ford Motor Co. at D., and hoped that their establishment would bring about the relationship between the U.S.A. and England which they were all anxious to have. Pop. 9127 in 1921.

Dagger, a short blade used for stabbing of very ancient origin. In mediæval times it was called the *misericorde*, and served to penetrate the armour-joints of an overthrown adversary. It was worn attached to the sword-belt on the right side: the handle was often richly decorated. Other varieties were the poniard, dirk, and stiletto. Famous Oriental Ds. are the Malay *kreese* and the Indian *khuttar*.



DAGGER INLAID WITH GOLD FOUND AT MYCENÆ

Daghestan, a Russian prov., extending along the W. coast of the Caspian Sea, and inland over the north-eastern spurs of the Caucasus range. The country is for the most part mountainous, and cattle breeding is the chief occupation. The cap. is Machatsch-Kala (the former Petrowsk) on the Cassian (Pop. 31,702). The inhabs. include Lesghians, Tartars, Turkomans, Great Russians and twenty-six other nationalities; the language belongs to the Lesghian group of Caucasian languages. 40 per cent. of the land is unproductive and 40 per cent. pasture. There were great numbers of cattle until the Bolshevik conquest of the people and the subsequent famine ruined them and their country, carpets and goats-hair fabrics are or were made. Area 58,015 sq. km. Pop. 786,880.

Dagnan-Bouveret, Pascal Adolphe Jean (b. 1852), Fr. painter, native of Paris, one of the foremost representatives of the *plein-air* school. Early in his career he was 'classical' in his subjects, but presently turned to scenes of every-day life, and his 'Wedding Party', 'Le Pain Benit', and, above all, his 'Breton Pardon' made him famous. As with Millet and Bastien-Lepage, his work became graver and deeper as years passed on, and in sympathy with the movement initiated by J. C. Cazin, he produced such masterpieces as the

'Last Supper' (1896) and 'Emmaus' (1898).

Dagō (corruption of *Diego*), a nickname given on English and American vessels to Spanish, Portuguese, and Italian sailors; also in the United States to Italian immigrants.

Dagō, Dagden, or *Gioma*, the largest of the Estonian islands, near the Gulf of Finland; separated from Oesel Is. (Livonian) by the Sõla Sound. Has rugged coasts, and is un-fertile except in the S. and W. Area 367 sq. m. Pop. 15,000, of whom about 10,000 are Estonians, the remainder Swedes and Germans. Occupations, fishing and cattle-rearing. It was occupied by Germans during the Great War.

Dagoba, see **TOPE**.

Dagobert I., a Merovingian King of the Franks (628-638), the son of Clotaire II. He re-united the Frankish empire, but it was divided again at his death.

Dagobert II., a King of the Franks (674-9), who should have succeeded his father, Sigebert II., in Austrasia in 656. He was kept from the throne for eighteen years, and was assassinated after reigning five years.

Dagobert III., a King of the Franks (711-15), succeeded his father, Childbert II., the third king of Neustria.

Dagon, a Philistine and probably Canaanitish deity (Judges xvi., 1 Samuel v.). It is uncertain whether his name is derived from *dag*, fish, or from *dagan*, corn; his idol, representing him as a kind of merman, favours the former hypothesis, but recent investigations seem to show that the cult was agricultural and imported from Babylonia. The Philistines worshipped him as the god of both war and of harvests, and he seems to have been the male counterpart of Astoreth, or Astarte. He had temples in Gaza and Ashdod; the former was destroyed by Jonathan Maccabeus.

Daguerre, Louis Jacques Mandé (1789-1851), inventor of the daguerreotype, forerunner of the present photograph, was b. at Cormelles, Seine-et-Oise, and in early life was

an inland revenue officer. Afterwards he became an artist, and with Pierre Prevost executed a number of panoramic views. In 1822 he established a pictorial exhibition called the diorama, which was so successful that he opened another one in London. But his great ambition was to produce permanent pictures by means of sunlight, and in this endeavour he was joined by J. N. Niepce, who had already been working for years at the same problem. Niepce *d.* in 1833, but D. persevered until he succeeded in producing such pictures on an iodised silver plate, called after him daguerreotypes. He wrote many works on this subject. His success was rewarded with the decoration of the Legion of Honour, and annuities for himself and Niepce's representative. See Mentienne, *La découverte de la Photographie en 1839* (1892).

Daguerreotype, see PHOTOGRAPHY.

Dagupan, a municipality and port in Luzon, Philippine Islands, exports sugar, corn, copra, rice and salt. Pop. 22,441.

Dahabiyeh, a Nile passenger boat, something like a decked barge with a sharp prow, of shallow draught, and carrying one or more sails. Tourist Ds. are often propelled by steam.

Dahl, Conrad Neuman Hjelm (*b.* 1843), Norwegian novelist, who like Björnson has drawn realistic pictures of the home life of Western Scandinavia, especially among fisherfolk. Chief novels: *Finnegutten*, *Eda Mansika* (1875), *Glimt* (1889), *Lina Kjørbo* (1898). He held a pastorate at Oslo, 1903-19.

Dahl, Johann Christian (1788-1857), Norwegian landscape painter. Particularly fond of striking effects in light and colour. One of his best pictures is an 'Outbreak of Vesuvius,' another 'Dresden by Moonlight.'

Dahl, Michael (1656-1743), portrait painter, *b.* in Stockholm who settled in London in 1688, obtained considerable patronage. He painted a portrait of Queen Anne, and also a series of portraits at Hampton Court. He was extensively employed by the nobility, but his work is not marked by any great originality.

Dahlak, or **Dahalak**, an island group belonging to Italy, situated in the Red Sea off the Bay of, and about 30 m. E. of the port of Massowa. The group comprises three larger islands, with numerous rocks, and was known to the Romans for its pearl fisheries.

Dahlgren, John Adolf (1809-70), an American admiral, *b.* at the Swedish consulate, Philadelphia. Serving in the U.S.A. navy from 1826-47, he was then transferred to the ordnance

department, and there invented the gun called by his name. When the Civil War broke out he was placed in charge of the navy yard at Washington. In 1863 he was made rear-admiral, and commanded the blockading fleet off Charleston until the end of the war.

Dahlgren, Karl Fredrik (1791-1844), a Swedish humorist and poet. *Mollberg's Epistlar* (1918) displayed his skill in both capacities, and within a few years he attained a leading place in Swedish literature.

Dahlhausen, a vil. of Prussia, situated in the prov. of Westphalia, on the R. Ruhr, 6 m. from Essen.

Dahlia, a genus of *Compositæ* composed of nine species of Mexican plants. In Britain several have been planted, but only *D. variabilis* has flourished, and given rise to very many beautiful varieties known to our gardens. In its wild state it is a bushy, herbaceous plant, 7 or 8 ft. high, with single purple or lilac flowers of no great beauty, but in cultivation it sports endless varieties in stature, leaves and flowers, and in the double forms both ray and disc florets are ligulate. The name of the plant was given to it in honour of the Swedish botanist Dahl.

Dahlmann, Friedrich Christoph (1785-1860), a German historian and politician, was one of the first to raise the Schleswig-Holstein question (1815). In 1837 he was banished from Hanover for upholding popular rights against the king; in 1848 he propounded a scheme for establishing a constitutional monarchy to include Prussia and all other German states. His chief works were: *Quellenkunde der deutschen Geschichte*, 1830; *Politik*, 1835; *Geschichte Dänemarks*, 1840-43; and histories of the English and Fr. revolutions.

Dahme, a tn. of Prussia, situated in the prov. of Brandenburg, about 40 m. S.E. by S. of Potsdam. Pop. 5000.

Dahn, Julius Sophus Felix (1834-1912), a German historian and novelist, *b.* in Hamburg where his father was a leading actor at the theatre. Felix D. studied law in Munich and Berlin, and became professor successively at Munich, Würzburg, and Königsberg, and finally rector of Breslau University in 1895. He wrote several important books on jurisprudence, but is more noted for his histories and historical romances. The former deal with the very earliest records of Germany, his greatest work, *Der Könige der Germanen* (11 vols.), 1861-1908, ending with the dissolution of the Carolingian empire. His romances, *Ein Kampf um Rom*, *Die Kreuzfahrer*, and many others, are ex-

tremely popular in Germany. Besides these, he published a good many volumes of poetry, much of this also founded on early German legends. A collected edition of his stories and poems was published (21 vols.) at Leipzig.

Dahomey, a colony in Fr. West Africa with an area of about 62,772 sq. m. and a pop. of 1,057,260 people. It is bounded on the E. by the Fr. mandated territory of Togo, or the N. by the Fr. Sudan and on the E. by the British colony of Nigeria. It was conquered by the Fr. in 1892. It was formerly a negro kingdom, for 200 years a centre of idolatry and heathen practices. The native army was famous for its detachment of 800 Amazons. The country is flat near the coast, while the interior consists of undulating plains and plateaux, with occasional stretches of forest. The chief towns are Porto-Novo (pop. 27,000), Grand Popo and Whydah on the coast, Parakou and Fada N'Gourma in the higher country. The natives, Moslems or Fetish worshippers, grow maize, manioc, yams, potatoes, areca nut and coffee. Palm oil and kernels are the chief exports. In the N. they rear cattle. They are of pure negro stock. There are three railways. Pop. 980,000.

Dail Eireann. The Lower House of the Legislature of the Irish Free State. The Constitution of the Irish Free State (Saorstát Eireann), which came into force on Dec. 6, 1922, provides that the Legislature (Oireachtas) shall consist of the King, a Senate (Seanad Eireann), and a Chamber of Deputies (Dail Eireann). Dail Eireann is sometimes termed shortly 'The Dail.' As in the case of the House of Commons of the United Kingdom, and of many another Lower House in the British Empire, alone D. E. among the legislative authorities of the Free State has the 'control of the public purse,' and the Government of the Free State is chosen from the party (or parties, in the case of a coalition) having the majority in that house. D. E. is, therefore, the real power in the land, and it derives its authority from the direct vote of all citizens, without distinction of sex, of 21 years of age or over. Election is based upon Proportional Representation, every citizen having only one vote, and the number of deputies is at present fixed at 153. The Universities in the Free State are entitled to representation in the D. E. and return three members each. Unless the Oireachtas be sooner dissolved, a new Dail must be elected every five years. All members of the Dail must take an

oath of allegiance to the Constitution, and both the Irish and English languages are official languages for the debates. The Dail is presided over by a Chairman (£1700 a year), who has a deputy (£1000 a year) and members are paid £30 a month and allowed travelling expenses.

Daily Chronicle. Coming into existence in 1855 as the *Clerkenwell News*, this paper was originally composed chiefly of small advertisements. In 1877 it was bought by Edward Lloyd and issued as a daily paper of Liberal views. It was purchased in 1918 by Mr. Lloyd George, Mr. Ernest Perris succeeding Sir Robert Donald, who had been editor from 1902. In 1929 Mr. William Harrison, chairman of the Inveresk Paper Co., bought a controlling interest in the *D. C.*, together with its associate papers. With dramatic suddenness the *D. C.* closed its doors on June 1st, 1930, and it was made known to the public that it had been absorbed by the London Liberal paper, the *Daily News*, which appeared thenceforth as the *News-Chronicle (q.v.)*

Daily Dispatch. Describing itself as the 'National Newspaper of the North,' the *D. D.*, is published daily from Manchester at 1d. Founded in 1900 by the Hultons, it was acquired by the Berry brothers in 1924, and is now one of the Allied Newspaper group. In general format the *D. D.*, resembles the London popular Press, and has a circulation in the neighbourhood of a million. Mr. A. Paterson is the Managing Editor. The address of the *D. D.* is Wither Grove, Manchester.

Daily Express. After many years of a struggle for existence, the *D. E.* has to-day the second largest circulation of any daily newspaper in Great Britain. It was established in 1900 by Chas. Pearson & Co., at a £d., but it was not until it passed into the control of Lord Beaverbrook (*q.v.*) in 1914 that it made any headway against the stern competition of the other popular dailies. Collecting a band of enthusiastic workers around him, many of whom, like himself, came from Canada, Beaverbrook set out to overhaul the *Daily Mail*, and such has been the momentum of his effort that during the last few years the circulation of the *D. E.* has grown by more than a million, so that now it actually challenges that of the *Daily Mail*, a situation which is not without an element of humour, for Lord Beaverbrook has a 49 per cent. interest in the *Daily Mail*, and Lord Rothermere a 49 per cent. interest in the *D. E.* Frank sensationalism is the main cause for the success of the *D. E.* Its 'streamers'

and 'head-lines' announce something exciting every day, and when news is scarce it will ingeniously introduce a campaign for or against this or that, with a cleverness which invariably catches the public's fancy. 'Drink More Milk' and the 'Kerb Step' were two such campaigns, while a fierce attack upon newspaper competitions (the *D. E.* does not run one) served the double purpose of interesting the public and annoying the rest of the Press. The present chairman of the *D. E.*, R. D. Blumenfeld (*q.v.*), generally known as 'R. D. B.', was for many years its editor, a position he took over in 1904; he has had much to do with the success of the paper. The present editor is A. Beverley Baxter, a Canadian by birth, who has had a meteoric rise in Fleet Street. It has been the policy of the *D. E.* during the last few years to gather together a band of writers, each a specialist in his own subject, and to make their names familiar to the public. The success of this scheme has played no small part in the popularising of the paper. 'Strube,' whose 'Little Man' has become a national figure, 'Beachcomber' (J. B. Morton), the humorist, and Trevor Wignall, the sports writer, each have many thousands of devoted followers. H. V. Morton, who writes graphic and human descriptions of travels in the British Isles, had the largest public of all, but in 1931 he joined the *Daily Herald*; and G. A. Atkinson, the film critic, also left the *D. E.* to join the *Daily Telegraph*. A regular contributor is James Douglas, editor of the *Sunday Express*, while the paper has run several successful series of articles contributed by famous people on subjects as diverse as Religion and the World in 1930. The *D. E.* women's pages have many readers, and a junior section for children is deservedly popular. In politics the *D. E.* is Independent Unionist, with a strong leaning towards Imperial ideas. Lord Beaverbrook was a prime leader in the agitation for 'Empire Free Trade,' throwing the whole force of his three papers, the *D. E.*, the *Sunday Express* and *Evening Standard*, into a persistent, if rather vague, attack upon the Conservative Central Office. Empire Free Trade candidates stood in several by-elections early in 1930, more than once splitting the vote and actually winning one seat. Empire Free Trade propaganda filled the main columns of the *D. E.*, but eventually disappeared when Lord Beaverbrook came to terms with the Conservative Central Office, and, to the general relief, politics were given a

rest. A fine new building is at present being erected in Fleet Street for the *D. E.*, not many yards from its present home in Shoe Lane, Fleet Street, E.C. 4. The *D. E.* is the only daily paper to be produced simultaneously in London, Manchester and Glasgow.

Daily Graphic was established in January 1890; the first illustrated morning newspaper in England; originated by Mr. W. L. Thomas in connection with the weekly *Graphic*. Well-reproduced drawings and photographs were employed to illustrate the more interesting features of the day, and Society news was ably reported. The *Daily Graphic* was opposed to all sensationalism and the vulgarisation of news, as befitted a paper circulating among a higher class of Society and well-to-do county families. It was noted for the ready response it received to any of its numerous charity appeals. In July, 1925, an agreement was entered into between the *D. G.* and the Allied Newspapers, Ltd., and on Monday, Oct. 18, 1925, the *Daily Graphic* was absorbed by the *Daily Sketch* and issued with it jointly.

Daily Herald. In the long and curious history of journalism few attempts to found a journal have been more quixotic or determined than that which has finally established the *D. H.* as Labour's first daily newspaper. Launched on April 15, 1912, with a capital of only £3000, the paper did not even start with the blessing of the leaders of the Labour Party. The first editor was W. H. Seed, who quickly gave place to Sheridan Jones, who in turn was succeeded by Rowland Kenney, under whose leadership the paper began to take form, although hampered at every turn by lack of capital. Kenney did much for the paper, giving it its (former) intransigent policy. But the struggle to survive during the war years was almost too much, and during that period it was only found possible to publish weekly. It was in this form that George Lansbury edited it from 1914 until 1919, when it resumed daily publication. Unable to support itself, it was constantly subsidised by the Trades Union Congress, although it was sufficiently independent in spirit to reject an offer of £75,000 made in 1920 by the Third International. The paper struggled on, making some progress under Hamilton Fyfe's editorship, but it had little chance against the 'capitalistic' Press, while the public it reached was of little profit to advertisers. Eventually, on Sept. 3, 1929, the T.U.C. sanctioned a scheme for placing the paper on equal terms with its rivals.

Retaining 49 per cent. of its interest, with control of the paper's political policy, the *D. H.* passed into the hands of Messrs. Odhams, Ltd., one of the largest firms of publishers in the country. The new paper was published on March 17, 1930, under the direction of J. S. Elias, the man who had converted *The People* and *John Bull* from apparent failures into great successes. The printing and format became at one bound equal to, if not better, than that of any other popular newspaper. An insurance scheme and lavish competitions provided immediate circulation builders, and it was obvious that no expense was to be spared in placing Labour's only daily in the first flight of newspapers. Success came at once. The circulation jumped to well over a million in a night, and has been growing steadily ever since. Politically, the *D. H.* has considerably moderated its tone, news always being given first place. The present editor is W. H. Stevenson, who was Associate Editor of the old paper, and he is beginning to collect a band of successful and popular writers, including H. V. Morton, who has been with the *Daily Express* for some years, and whose followers may probably be numbered by the million, and Hannen Swaffer, the dramatic critic, also formerly of the *Daily Express*. The *D. H.* is now willing to voice any subject of public interest, and not only Labour leaders, but distinguished writers from all walks of life are regular contributors to its columns. The *D. H.* is published at 1d., simultaneously in London and Manchester, the London address being Wilson Street, Long Acre, W.C. 2.

Daily Mail. First published on May 4, 1896, the *D. M.* not only introduced modern journalism, but is one of the most successful newspapers ever published. Its founder, Lord Northcliffe, at that time Alfred Harmsworth, is by general consent considered the greatest journalist of all time, and the effects of his teaching can be seen in every newspaper office the world over. From the beginning, his policy with the *D. M.* was to give the public what it wanted, presenting the news of the day in such a manner that it could be taken in at a glance. The *D. M.*, when the first issue appeared, was entirely different from anything that had ever before been published. It was brisk, and straight to the point. It had an organised news service from all parts of the world quite unequalled by any similar paper. It was not afraid to speak its mind, and all the time it went to immense pains to provide its public with what really interested

it. Over and above this it was priced at ½d. (it is now 1d.), and was willing to take up a cause or denounce an evil without a thought of the consequences. Under Northcliffe's direction the circulation grew until it was far larger than that of any other paper, and several amazing 'scoops' during the Boer War consolidated its position as the paper for the man in the street. During the Great War the *D. M.* played an important part in the guidance of the nation. By unceasing propaganda, it urged the placing of Lloyd George in charge of munitions; on one occasion was solemnly burnt on the Stock Exchange for its attacks on Lord Kitchener during the shell shortage; and throughout the war period played a lively part in the conduct of State



LORD NORTHCLIFFE

affairs. Throughout this period, and until his death in 1922, Lord Northcliffe was the dominant personality behind the *D. M.* and its companion papers, the *Evening News* and *Sunday Dispatch*, as he was behind the many other publications he founded and ran (see NORTHCLIFFE). The *D. M.* is now owned by Associated Newspapers, Ltd., a company controlled by the Rt. Hon. Viscount Rothermere, Lord Northcliffe's brother. Politically it is Conservative in principle, but more often than not takes an independent line. It was associated with Lord Beaverbrook and the *Daily Express* in running several Empire Free Trade candidates at by-elections during 1930

and 1931. The *D. M.* organises many exhibitions, one of the most successful of which is the annual Ideal Homes Exhibition. It has also fostered many movements, taking an especial interest in flying, and doing much to assist pioneer airmen by the offer of large prizes, amounting to as much as £10,000. The advertising power of the *D. M.* is famous throughout the world, its front page alone costing £1500 for a single insertion. It is now the only popular daily left in London which still gives up its front page to advertising. The present Editor-in-Chief of the *D. M.* is W. A. McWhirter. Nearly all famous writers have contributed at one time or another to its columns, and Wyndham Lewis and Maurice Lane-Norcott, the humorists, are regular contributors, while Tom Webster is probably the best-known sports cartoonist in the country. Published simultaneously in London and Manchester, its circulation is still the largest in the world, standing at over 1,800,000. On more than one occasion it has exceeded the two million mark. Other editions of the *D. M.* include a Continental one published from Paris; an Atlantic edition, printed and published on board several of the larger liners; and a weekly edition. The *D. M. Year Book*, founded in 1901, sells at 1s., and is popular among all classes for reference purposes on general subjects. The head office of the *D. M.* group is Northcliffe House, Tudor House, E.C. 4.

Daily Mirror. In many ways the *D. M.* is the best example of Lord Northcliffe's genius as a journalist. Founded as a penny daily for women on Nov. 2, 1903, under the editorship of Mrs. Mary Howarth, it was obvious, after a few issues, that there was no public demand for such a paper, and it seemed inevitable that the paper must die. Defying defeat, Lord Northcliffe converted it in twenty-four hours into an illustrated newspaper, and in its new form it was soon firmly established. The success of this change consolidated Northcliffe's position as the journalist who would not own defeat. In 1914 Lord Rothermere became chief proprietor of the *D. M.*, and a year later founded its companion paper, the *Sunday Pictorial*. The object of both papers has always been to provide the latest news in pictures, and many daring feats have been accomplished in carrying out this policy. The acting editor of the *D. M.* is at present L. D. Brownlee. The artist W. K. Haselden contributed his first picture cartoon to the paper in Jan. 1904, and has been a regular

contributor, with but few interruptions, ever since. One of the most popular features both of the *D. M.* and the *S. P.*, is that devoted to the doings of Pip, Squeak and Wilfred, the first two of whom were introduced to thousands of delighted children in May, 1919, while Wilfred appeared in Feb., 1920. 'Uncle Dick,' their guardian, is B. J. Lamb, who has contributed to the *D. M.* for many years. Its popular features and general brightness give the *D. M.* a circulation well in excess of a million. It had a circulation of 2,013,943 for its King Edward Memorial Number in 1910, and of 3,005,430 copies for its Princess Mary's Wedding Number in 1922. The *D. M.* sells at 1d. and is published from Geraldine House, Rolls Buildings, Fetter Lane, E.C. 4.

Daily News, see NEWS-CHRONICLE.

Daily Sketch. Founded in Manchester in 1909 by Sir Edward Hulton as a penny 'picture paper,' the *D. S.* relies mainly upon its news pictures, aided by brightly written articles, theatrical and society features, and news served up in an easily digested form, for maintaining its circulation of a million copies daily. No expense is spared in providing the news of the day in pictures, every possible means of transport being used to bring them from all quarters of the globe. Politically, the *D. S.* is independent, showing, as is the case with its rival, the *Daily Mirror*, little interest in politics except from a pictorial standpoint. In 1925 the *D. S.* absorbed the *Daily Graphic*, thus leaving only two picture papers in London. An Overseas Edition, founded in 1914, is published each Thursday, price 6d. The *D. S.* is owned by Allied Newspapers, Ltd., and is thus controlled by Lord Camrose and his brother, Sir Gomer Berry, Bt. The present editor is A. Curthoys. The *D. S.* possesses several artists of distinction, and the daily verse of 'Wilhelmina Stitch' (Mrs. Frank Collie), is popular. Published simultaneously in London and Manchester, the London address is 200, Gray's Inn Road, W.C. 1.

Daily Telegraph. The first penny newspaper published in London, the *D. T.* can look back upon as fine a past as most existing newspapers. Founded in a more or less casual manner by a printer in June, 1855, it passed, shortly afterwards, into the hands of the father of the present Viscount Burnham (q.v.), and remained in that family until 1927, when it was sold to Sir William Berry, Bt. (q.v.) (created Baron Camrose of Long Cross in 1929), Sir Gomer Berry, Bt., and Sir Edward Iliffe, the present

proprietors.' In 1930 the price, which had been 2*d.* for many years, was reduced to 1*d.*, and the general size and form were altered to meet modern requirements. These changes were apparently successful, for the circulation rose to well over 200,000. The *D. T.* has always specialised in foreign news, and has many famous correspondents in all parts of the world. It was owing to the enterprise of the *D. T.* that Stanley was enabled to find the Congo, his undertaking having been originated by the paper, which also bore the expense of his search for Livingstone. In the same way, the *D. T.* assisted in the Assyrian discoveries of George Smith, and the exploration of Mount Kilimanjaro by Sir Harry Johnston. Like the *Daily Mail*, the *D. T.* was responsible for a number of 'scoops' during the Boer War, and the rivalry between the correspondents of the two papers was intense. Politically, the *D. T.* began as a Liberal paper, but at the present time it is frankly Conservative. Following the example of other papers owned by the Berry brothers, it believes in placing news before political views. Many notable writers have been associated with the *D. T.*, including Edward Dicey, Frank Lawley, Clement Scott, George Augustus Sala, W. L. Courtney, for so long the editor of the *Fortnightly Review*, who was literary editor for many years, and J. L. Garvin, the present editor of the *Observer*. The present editor of the *D. T.* is Arthur E. Watson. The *D. T.* specialises in the issue of special supplements, many of which are of permanent value. With a rising circulation and still refusing to become sensational, the *D. T.* seems likely to repeat its former successes, and its proprietors evidently expect much, for the new *D. T.* building, recently erected in Fleet Street, is the finest newspaper office in the country, and allows ample room for expansion. The *Sunday Times*, also owned by the Berrys, is housed in the same building. The address is 135-136, Fleet Street, E.C. 4.

Daimiel, a tn. of Spain in the prov. of Ciudad Real, 20 m. E. of that city, and 60 m. S.S.E. of Toledo. There are manufactures of woollens and linens, and distillation of brandy. There is also a saltlake. Pop. 16,260.

Daimiōs ('great names'), the feudal nobles of old Japan, who within their own domains were almost absolute, paying only nominal allegiance to the Mikado; the Samurai were their military retainers. Although the Shogun (temporal ruler) and D. lost their power in the revolution of 1868, the

governing classes of Japan are still mostly of Samurai descent.

Daimler, Gottlieb (1834-90), motor pioneer, b. near Würtemberg. After gaining experience in Germany and at Whitworth's, Manchester, he assisted Dr. Otto in the development of his gas engine (Cologne, 1870), and became director of his factory. Conceiving the idea of increasing the power of oil and gas engines by making the working parts lighter, with greater velocity of rotation, he produced the first motor bicycle in 1885, followed in 1887 by a petrol-driven car. Benz of Mannheim, Panhard and Levassor of Paris, and others took up the idea, and D. engines have become universal.

Dairen, or Ta-lien, see **TAIREN**.

Dairy. The word D. is the same as the Middle Eng. 'deieris,' which was the place where the 'dey' or maid-servant worked. It now denotes the place where the milk in its natural form and the cheese and butter are prepared. The milk of the cow is used all over the world for D. purposes, but in certain regions physiological conditions have led to the dependence on sheep, goats, reindeer, camels, etc., for milk. In no other department of agriculture has the celerity of advancement been greater than that in D. farming. The invention of the centrifugal separator about 1878 created a revolution, whilst smaller progressive reforms may unquestionably be traced to the persistent exertions of the British Dairy Farmers' Association and to the D. shows held annually under its auspices since the year 1876. Moreover, this association acted as pioneer in the matter of providing technical instruction in D. farming; for it founded a D. school in the Vale of Aylesbury, a school now established in Reading under the name of the British Dairy Institute, and its example was followed by many municipalities all over the country.

Improvements in Appliances.—In all modern dairies centrifugal separators are now in use, but without such an appliance cream is separated by means of the milk-pan, skimmer, and cream crock. The first is a shallow, lipped pan made of white porcelain, enamelled iron, or tinned steel; the second—a still shallower dish—serves to lift the cream from the surface of the milk in the pan into the earthenware cream crock, where it remains for one or two days before churning. By the mechanical process of cream separation, a bowl containing the fresh milk is made to rotate several thousand times every minute. In this way the lighter

butter fat is collected to the centre of the bowl, and thence removed through a tube, the watery and heavier portion of the milk being driven out from the outer zone through another tube. Small machines for 10 up to 100 gallons an hour are often worked by hand still, but separators worked by horse or steam power can deal with four or five times that quantity in the same time. Pasteurisers, so named after the Fr. scientist, Pasteur, have been designed so as to destroy the tubercle and other bacilli which may be communicated to human beings through the medium of milk. It is best to heat the milk in closed pasteurisers for about twenty minutes at 140° F. For it is found that a lower temperature for a longer period is as effective as a higher temperature (180° F.) for a shorter time (ten minutes). Dairy engineers have now devised excellent plant for the proper filtration or pasteurisation of new milk in large dairies. The new milk is allowed to flow into closed receptacles, in which it is raised to the required temperature and kept in a state of continual agitation so as to prevent the formation of the scalded layer. It is then necessary to reduce the temperature of the milk to that of water; otherwise its keeping properties are seriously impaired. This result is most easily achieved by allowing the milk to run down the outside of a metal refrigerator, corrugated so as to increase the cooling capacities of the machine and filled inside with cold water. The water is kept continually running, the refrigerator being fed by a cistern. Butyrometers are the most convenient machines for testing the amount of fat in milk. Properly graduated testing tubes are filled with the milk to be tested and fixed on a rimmed metal dish which is then made rapidly to revolve. Standard sulphuric acid and warm water are required, chemical action as well as the principle of centrifugal force being involved in the testing. The following are the appliances needed for cheese-making. Cheese vats are made both rectangular and round, and may be double-jacketed, the outer vat being supplied with pipes for steam. The rectangular vat, which is moved on wheels, is best made of tinned steel for the inner case, and iron for the outer. Double tinned sheets of steel, fitted on the outside with bands, make a strong circular vat. Curd knives, for freeing the whey from the coagulated mass, should be made of fine steel with keen edges. A special machine has been devised for subjecting such 'hard' cheeses as Cheddar to con-

tinual pressure; no pressure is applied to 'soft' cheeses, which are simply made into the requisite size and shape in metal moulds. Cheeses should always be allowed to ripen in a room fitted with easily-turned shelves. Diaphragm tub-shaped wooden churns are still used for butter-making. The butter is lifted out of the churn by wooden butter scoops. A machine, known as the 'Délaiteuse' butter drier, and worked on the centrifugal force principle, is now coming into use in order to squeeze out the superfluous moisture.

Dairy Factories have originated in America and thence spread to Europe. The first was a cheesery founded by Jesse Williams in 1860 in Oneida county, New York. His success in the new venture led to the rapid establishment of similar factories and also of 'creameries,' or butter factories, all over the States and Canada. Such was the mushroom growth of these factories that by 1866 there were 500 cheese factories in New York state alone. In England cheeseries were first instituted in 1870, when one was set up in Derby and another in Longford. But the enormous increase in the supply of milk from country to urban dists. leaves a comparatively small surplus of milk for conversion into butter and cheese, a fact which accounts for the scarcity of D. F. in England relatively to the United States. Moreover, foreign butter from Denmark, etc., and colonial butter from Australasia, etc., are superior to the average butter produced in the United Kingdom. The cheese and butter factory system was introduced from America into Denmark, Ireland, France, etc., with surprising success. To-day one trained butter-maker can work up in a creamery the cream taken from 700 cows. His product finds a speedy market by reason of its even quality. It is packed in refrigerator cars, and within two weeks of its churning can reach a consumer many thousand miles distant. Artificial fats are frequently added to skim-milk to produce a poorer kind of butter, full-milk cheese being manufactured at the same time in the same factory. One great advantage of the introduction of D. F. is that the latter act as 'economic safety-valves' to the milk trade. A fall in the demand for milk causes small inconvenience to the trader; all he has to do is to sell to the cheesery or creamery instead of to the milk retail dealer. Surplus milk can also be turned to future account by drying and by condensation. In 1855 Grimwade first made use of powdered milk in England and in America a combina-

tion of whole milk powder and extract of malt was sold in 1883. Since that time many patented processes have placed a number of dried milks on the market. The first condensed milk plant of America was established by Gail Borden in 1856 at Wolcottville, Conn., and to-day the total produce of about 800,000 cows is preserved in the States by condensation. John B. Meyenberg patented his process for supplying unsweetened 'evaporated milk' in hermetically sealed tins in 1884. A still further product of America is the factory-made ice cream. In 1851 Fussell of Baltimore established a plant for making ice, and since that time he has erected other factories in Washington, Boston and New York. Ice cream which is sold commercially must contain not less than 7-14 per cent. of milk fat. In 1926, 2.8 gallons per head were consumed by the American public, the product of about 850,000 cows. In American factories in 1927 (the last year reported) there were produced 1,796,495,000 pounds of creamery butter; 482,365,000 pounds of cheese; 226,756,000 pounds of ice cream; and 346,368,000 pounds of condensed milk. See: *Milk and Milk Products*, by C. H. Eckles, W. B. Combs and H. Macy, 1929.

Dairy-farming: Milk Production and Disposal. Cows should be allowed plenty of pure water: epidemics of typhoid fever have been traced to cows drinking contaminated water. When the crops of grass, Italian ryegrass, vetches or clover fail in the autumn, the cow must be given brewer's or distiller's grains or turnips. If the supply of turnips, however, is overdone, the butter and milk acquire an unpleasant flavour. Mangels and swedes are good substitutes for turnips. Milk cows should have about six pounds of concentrated food, such as oil-seed cakes, bran, and various farinaceous meals like bean meal, each day. Thirty pounds of dry food a day are a sufficient allowance for a cow in full milk, but the food mixture should be varied as much as possible. Cleanliness is absolutely essential in the cows, their sheds and the milkers. The cow-houses, moreover, must be well lighted, ventilated, and drained. Every cow should be examined at least twice a year by a veterinary surgeon, and the milk of any cow suspected of tuberculosis or other disease must be rejected until the animal has been inspected. Milking should be performed quickly and quietly, and every care must be taken not to excite the cows unnecessarily. For summer dairying it is arranged that the cows calve in the spring, so

that abundance of succulent grass during the summer may lead to a full supply of milk. On the first appearance of frost cows should be sheltered at night, even though this curtails the milking period. In time all cows 'dry off' a few months before calving again in the spring. Cows will give a good supply of milk for ten years. Where large populations have to be supplied with milk all the year round, winter dairying is the rule. With this system cows are allowed to calve at all seasons so as not to interfere seriously with the supply at any one period. The cow is kept in the shed winter and summer and fed at an unnaturally high pressure so as to ensure a good milk yield. Usually it pays the farmer best to keep the animal only one milking season, as its constitution would undoubtedly suffer if it were allowed to calve the following year. The main objection to this process is that, were it to spread all over the country, the breed of dairy cattle would undoubtedly deteriorate owing to neglect in rearing from the best milking mothers. For town supplies cows are usually milked three times a day; otherwise morning and evening only. The distribution of milk was revolutionised by the growth of huge railway systems all over the country, and also by the invention of refrigerators. The former allow milk to be brought to London daily from places as distant as Derby, Gloucester, Dorset, etc., and even from Scotland, and the latter ensures the goodness of that milk by increasing its keeping qualities. Practically all the milk brought to the metropolis comes from different parts of England: other big towns are similarly supplied. The estimated production of milk for human consumption in England and Wales, according to the Ministry of Agriculture, was 1,147,000,000 gallons in 1927-28. Practically all the butter and cheese made in the country is used for home consumption, and large imports of foreign milk products are made annually—butter chiefly from Denmark, New Zealand, Australia, and Ireland; cheese from New Zealand, Canada, the Netherlands, Italy, Australia, and America. In the U.S.A. the leading dairy states are New York, Wisconsin, Pennsylvania, Illinois, Iowa, Ohio, Minnesota, Michigan, Indiana, Missouri, and Kansas. The amount of milk used for human consumption is over 55 gallons per head annually, and about 25 per cent. of the yearly income from farming is derived from milk alone. There are about 22,499,000 dairy cows distributed throughout the States, and about 1½ million people are employed in

their care and in the manufacture and distribution of milk products. These milch cows were valued in 1931 at 1,876,357,000 dollars. Of these butter is the chief, taking about 25 per cent. of the total amount of milk produced, while the manufacture of cheese and of ice cream take another 7 per cent. between them. Dairy-farming is of the utmost importance economically to the States, and is rapidly increasing in extent and value. Total milk production in the U.S.A. in 1924 was 9,198,304,000 gallons. The total value of dairy products was over 3000 million dollars.

Daisy, the name given to several composite flowers, but is applied in particular to *Bellis perennis*, the little plant which flourishes all over Europe and is common in fields and on lawns. The head is composed of yellow, tubular, and hermaphrodite florets of the disc, and white, ligulate, and pistillate florets of the ray; in wet weather and at night the surrounding involucre of bracts covers the florets. The dog D. or ox-eye D. belongs to the *Chrysanthemum* genus, and is known technically as *C. Leucanthemum*, while the Michaelmas D. is a British species of *Aster*.

Dāk, or **Dawk**, the name for the Indian postal service; applied also to everything belonging to it, as dawk-runners, horse-dawks, etc. Dawk-men also carry travellers in palanquins, and at every stage (about 12 m. on main roads) there is a dawk-bungalow where rest and provisions can be had for a moderate charge.

Dakahlieh, **Dagahlia**, or **Datah-lieh**, a prov. of Lower Egypt, with an area of 750 sq. m. It is one of the most fertile provinces. The chief tn. is Mansoorah. Pop. 1,077,700.

Dakar, the only commodious port of Senegal, Fr. W. Africa. It has a well-equipped harbour and dockyard, completed in 1908, and is strongly fortified. In 1905 a submarine cable was laid to Brest. The town is well built and fairly healthy. Pop. 40,000.

Dakiki, **Abu Mansur Muhammad**, a Persian poet who flourished about A.D. 1000, a native of Tus or Bokhara. He wrote many odes and sonnets, and left unfinished the *Book of Kings*, of which he had written a thousand distichs at his death. Firdausi claimed to have been inspired in dreams by Dakiki.

Dakor, a tn. of British India, in the Bombay Presidency 30 m. from Baroda. There are a large lake and a temple with an image much venerated by 100,000 pilgrims in October and November. Pop. 10,000.

Dakota, also called **James River**,

from the name Rivière de Jacques given to it by early Canadian *voyageurs*. It rises in N. Dakota, U.S.A., and flows S. through S. Dakota, reaching the Missouri near Yankton, after a course of 600 m. Its valley is very fertile.

Dakotas, see **DACOTAHs**.

Dal, a riv. in Sweden, 250 m. in length. It is formed by the confluence of the rivers Oster and Wester Dal Elf, and enters the Gulf of Bothnia about 60 m. from Upsala.

Dalaguete, a municipality in the is. of Cebu, Philippine Islands. Corn, coffee, cocoa, manila hemp, etc. are produced and fish caught. Pop. 26,904.

Dalai-Kui, a small island in Lake Kosso, Kosso-gol, or Kosgol, Mongolia, 130 m. S.W. of Lake Baikal. The island is held by the native Buddhists to be 'the navel of the earth,' and is therefore considered holy ground. Lat. 51° N., long. 100° 30' E.

Dalai Lama, see **LAMAISM**.

Dalai-nor (Holy Sea): (1) Lake of Mongolia, near Russian frontier and the great bend of the Argun R., in lat. 49° 10' N., long. 117° 20' E. Also called Hurun or Hulun. It is fed by the Kerulen R., but is now rapidly drying up, and has ceased to send any water into the Argun. (2) Small lake of S. Mongolia in lat. 43° N., long. 116° 30' E.

Dalarne, or **Dalecarlia** (the Dales), an ancient prov. of Sweden, lying N.W. of Stockholm, and stretching from the Norwegian frontier nearly to Gefle on the Baltic. The district is now called Kopparberg. The Dalesmen still retain their ancient costume and dialect, and have always been noted for bravery and independence. In 1434, led by a miner, Engebrecht, they rebelled against the tyranny of Eric of Denmark, and when, in 1523, Gustavus Vasa freed Sweden from the Danes, his best helpers came from Dalecarlia. The district is to a great extent covered with forest, but agriculture is carried on where possible, and there are very productive iron and copper mines, with large works for smelting, blasting, and rolling, also saw-mills and wood-pulp factories. Chief town, Fahlun. See J. B. Philip, *Holidays in Sweden*, 1914.

Dalbeattie, a bor. and tn. of Kirkcudbrightshire, Scotland, situated on Dalbeattie Burn, 14 m. S.W. of Dumfries. There are important granite quarries in the neighbourhood; the materials for the Liverpool Docks, Thames Embankment, and other public erections have been taken from here. There are also granite-polishing works, dye works, and paper

mills. Small vessels can approach quite close to the tn. up the mouth of the Burn. John Balliol, founder of Balliol College, lived in the neighbourhood. Pop. 2998.

Dalberg, the name of a noble Ger. family whose ancestors in the twelfth century were hereditary chamberlains of the bishop of Worms. In 1494 they had become so important that Maximilian I. granted them the right of claiming the first knighthood at each coronation.

Johann Dalberg (1455-1503), Bishop of Worms, a great scholar; founded the first Greek chair at Heidelberg.

Karl Theodor Dalberg (1744-1817), Archbishop of Mainz and chancellor of the empire, a friend of Goethe and Schiller, ruined his career by joining his fortunes with those of Napoleon. The D. family is extinct, but its last heiress married an Englishman, and her son was created first Lord Acton.

D'Albert, Charles Louis Napoleon (1809-86), a musical composer, *b.* at Nienstetten, near Hamburg; became ballet-master at Covent Garden, London. Later he left his post to take up the teaching and composition of music, settling at Newcastle. He composed many popular dances, including the *Bridal Polka*, *Sweethearts' Waltz*, *Sultan's Polka*, and *Edinburgh Quadrilles*, and was a favourite master both for music and dancing, writing *Ball Room Etiquette* in 1835.

Dale, a coast vil. of Wales, situated on Milford Haven, in the co. of Pembrokeshire, 7 m. W. of Milford. It is noted in history as the place where Henry VII. landed with his Fr. followers on his way to Bosworth. Pop. 273.

Dale, Alan (real name **Alfred J. Cohen**), (1861-1928), Anglo-American dramatic critic and author; *b.* at Birmingham, England; educated at King Edward's School there. In New York 1887, became dramatic critic of the *Evening World*; in 1895 transferred himself to the *New York Journal*. Later, on the *New York American*. From 1895 was on the staff of the *Cosmopolitan News Service* (Hearst's)—with an interval in 1914. Writings include: *Jonathan's Home*; *A Marriage below Zero*; *Familiar Chats with Queens of the Stage*; *A Moral Busybody*; *His Own Image*; *A Girl who wrote*, 1902; *The Great Wet Way*, 1909; *When A Man Commutes*, 1918. Died in England May 21.

Dale, David (1739-1806), a Scottish philanthropist and founder of the 'Old Independents,' was in early life a Lanarkshire weaver. Engaging in the importation of Fr. yarn, he

gained enough to establish cotton mills at New Lanark, and also the first Turkey-red dye works in Scotland. A kind employer, he was also deeply interested in charitable and educational work. His son-in-law was Robert Owen, the communist.

Dalecarlia, see **DALARNE**.

D'Alembert, Jean le Rond, see **ALEMBERT**.

Dalgarno, George (1626-87), an inventor of a 'deaf and dumb' alphabet, *b.* at Aberdeen, and was a schoolmaster in Guernsey and at Oxford. His *Ars Signorum* (1661) contained ingenious suggestions for a universal language, based on the hypothesis that ideas could be expressed by universal characters. His *Didascalocophus, or The Deaf and Dumb Man's Tutor*, appeared in 1680.

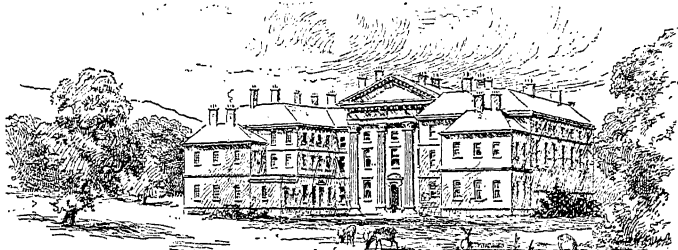
Dalhousie, (1) a mt. sanatorium, 7687 ft. above sea-level, in the Dhaoladhar range, N.E. Punjab, close to Kashmir frontier. Pop. 6821. (2) A famous university in Halifax, Nova Scotia. There were 869 students in attendance at the regular session in 1930.

Dalhousie, Sir James Andrew Brown, first Marquis and tenth Earl of (1812-60), Governor-General of India; entered the House of Commons in 1837, and in the following year, on the death of his father, took his seat in the Upper House. His powers of debate soon won him office, and at the early age of thirty-one Peel appointed him Vice-president of the Board of Trade, and, two years later, in succession to Gladstone, President. In 1846 he went to India as governor-general. Not long after his arrival the second Sikh War broke out, and in 1849 the Punjab was annexed. While the arrangement for the future administration of the new prov. occupied much of his time, D. yet found leisure to introduce many internal reforms in India. Careful to interfere as little as possible with the religious and caste-system, yet there were certain abuses that he could not but remove. Notably, he legitimatised the remarriage of Hindu widows, and used all the means in his power to prevent the old practice of suttee. It is to D. that India owes the introduction of the telegraph and the railway; the railways, according to the principle he had, when at the Board of Trade, desired to apply to the Eng. lines, were erected and controlled by the gov. It was during his viceroyalty that the second Burmese War occurred, and that Lower Burma was added to the Br. empire. He returned to England in 1856, his term of office having

been extended beyond the usual limits. There is a biography of D. by Sir William Lee-Warner (1904).

Dalin, Olof von (1708-63), a Swedish poet, son of the pastor of Vinberg. Entering a gov. office at Stockholm in 1726 he rose rapidly. Being fond of Eng. literature he started (1733) the *Svenska Argus*, on the model of Addison's *Spectator*, and also wrote some satires in imitation of Swift. An historical epic, *Svenska Friheten* (1742), and a history of Sweden procured him the post of tutor to the Crown Prince, but becoming entangled in Queen Louisa's political intrigues, he was disgraced and banished from the Court (1756), and though recalled five years later his health and spirits were entirely broken.

(1817), an American statesman and financier, b. in Jamaica, West Indies, educated at Edinburgh; studied law at the Inner Temple; practised in Jamaica, and in 1783, having taken oath of allegiance to the U.S.A., in Philadelphia. He held several important positions in the commonwealth of Penn., and in 1814 Madison made him secretary of the Treasury; D. also served for some months as Secretary of War, and during that time reorganised the army on a peace footing. He found the gov. bankrupt, and left it with a surplus of more than twenty million dollars. Among his writings are *The Laws of Pennsylvania, 1700-1801*, 1801, and *An Exposition of the Causes and Character of the War of 1812-15*, 1815.



DALKEITH PALACE

Dalkeith, a market tn. 6½ m. S.E. of Edinburgh, is picturesquely situated on a tongue of land between the N. and S. Esk. It has an important grain market, while iron moulding, carpet weaving, brush making, and brewing are among the industries carried on. Extensive coalfields are in the vicinity. D. Palace (rebuilt in 1700) is a seat of the Duke of Buccleuch. Pop. 7707.

Dalkey, a fashionable sea-side resort in Co. Dublin, Ireland, with a fishing village. Pop. of urban dist. 3536.

D'Allainval, see ALLAINVAL, D'.

Dallas, the leading manufacturing city of Texas, U.S.A.; with a pop. of 260,475 originated in 1841 with one log hut. Nearly half the cotton gins used in the world are made at D. There are large oil-fields, petroleum refineries, the largest inland cotton market, a municipal air port, fifty parks, and the Southern Methodist University with 3000 students. The fair held here is the largest annual fair in U.S.A. There are Roman Catholic and Protestant cathedrals.

Dallas, Alexander James (1759-

Dallas, George Mifflin (1792-1864), an American diplomatist and politician, b. in Philadelphia. In 1837 he entered the diplomatic service and acted as American ambassador in St. Petersburg for two years. He was elected vice-president of the U.S.A., 1844-49; ambassador to Great Britain, 1856-61. He wrote *Series of Letters from London*, 1869, and a *Life of his father*, A. J. Dallas, 1871.

Dallin, Cyrus Edwin, American sculptor; b. 1861, at Springville, Utah, where he became familiar with Red-Indian life. Studied, Boston and Paris. Among his statues are: *Signal for Peace* (gold medal, Chicago, 1893), *The Medicine Man* (Fairmount Pk., Philadelphia), *Sir Isaac Newton* (Congressional Library), *Don Quixote* (gold medal, St. Louis, 1904).

Dallinger, William Henry (1841-1909), an Eng. scientist, b. at Devonport. Author of *Minute Forms of Life*, 1866; *The Creator and what we may know of the Methods of Creation*, 1887; and editor of Dr. Carpenter's *Microscope and its Revelations* (new ed.), 1901.

Dallmeyer, Johann Hein (1830-83),

a German optician, *b.* at Loxten, Westphalia; came to London in 1851, and entered the employment of Ross, a telescope manufacturer, inheriting a large part of his business in 1859. He also took up the manufacture of photographic lenses with great success.

Dalmatia, a crown land of Yugo-Slavia, lying along the eastern side of the Adriatic. It is bounded on the E. by Bosnia, Herzegovina, and Montenegro, and by Croatia on the N. It is at no part more than 50 m. in breadth, but has a length of 350 m. The inhabitants are mainly of Serbo-Croatian origin, but many Italians are to be found along the coast. They are for the most part engaged in sea-faring occupations, and in stock rearing and fruit growing. The products include wine and olives. The religion of the people is almost entirely Rom. Catholic. The coast is much indented, peninsulas and islands alternating with gulfs and bays. The islands include Pago, Brazza, Lunga, Lissa, and Lesina. The country is largely mountainous, and includes the Dinaric Alps and the Karst plateaus. The principal rivers are the Zermanya, Cettina, Kerka, and Narenta. *D.* was in former times a part of Illyria. In the early centuries of the Christian era it was overrun by the Goths and the Avars, and also by the Slavs. In the Middle Ages it fluctuated between the dominance of Venice and Hungary. It was ceded to Austria in 1797, to France in 1805, and again to Austria in 1814, and after the Great War was united to Yugo-Slavia, except the tn. of Zara which went to Italy. Pop. 621,500.

Dalmatian Dog, a spotted carriage dog, generally kept in stables. It is active and muscular, a good runner, and a fine watch dog. Its colour should be pure white, with round black or liver-coloured spots, evenly distributed over its body. The average size of the spots is that of a shilling, but they vary from the size of a sixpence to the size of a florin. The spots on the head, tail, and limbs are smaller than those on the rest of the body. Its other points are: Head long, with a flat skull, and quite free from wrinkles; muzzle long and powerful; eyes set fairly wide apart, bright and intelligent, black or dark brown in the black-spotted variety, yellow or bright brown in the liver-spotted variety; ears thin, well spotted, and rather small, carried close to the head; nose black or dark brown, according to its other markings; forelegs perfectly straight; hind legs with hocks well let down; feet round and cat-like; tail well spotted, long and tapering, carried

with an upward curve; coat short, thick, and glossy. The average weight of a dog is 55 lb., of a bitch 50 lb.

Dalmatic, an ecclesiastical vestment worn in the Western Church by deacons and bishops at Mass, and also at solemn processions and Benediction except in the penitential season. It is marked with two vertical stripes from the shoulder to the foot of the garment, which is slit beneath both sleeves. At a deacon's ordination the bishop prays 'may He (the Lord) cover thee with the dalmatic of righteousness forever.'

Dalmau, a city of India, in the prov. of Oudh, situated on the Ganges, 60 m. N.W. of Allahabad, and 50 m. S.E. of Cawnpur. Pop. 5000.

Dalmellington, a par. and vil. of Ayrshire, Scotland, 15 m. S.E. of Ayr. Coal and iron have been worked from the eleventh century, and there are limestone and sandstone quarries. Pop. of par. 6155, vil. 1965.

Dalmeny, a vil. and par. of Linlithgowshire, Scotland, 1 m. S.E. of S. Queensferry. Near is D. Park, the seat of the Earl of Rosebery, and Barnbougle Castle. Pop. (with Queensferry) 4557.

Dalou, Jules (1838-1902), a Fr. sculptor, *b.* in Paris. He studied under Carpeaux and Duret. He had held office under the commune in the Louvre, 1871, and was obliged to flee to London, where he was given a professorship in the South Kensington Museum, 1878; he returned to France in 1879. He always remained a disciple of Carpeaux, but his style is purer and his conception more vigorous. His chief works are: 'Mirabeau delivering his famous Address in the States-General, 1789,' in relief, which was placed in the Chamber of Deputies; 'The Triumph of Silenus' (1897), in the Luxembourg, Paris; 'Bacchus consoling Ariadne' (1892); 'The Triumph of the Republic' (1900), in the Place de la Nation. He also executed busts of many of his contemporaries.

Dalriada: (1) The ancient name of the northern dist. of co. Antrim, Ireland, now known as 'The Route.' The Dalriads were, by tradition, descendants of Riada of the Long Wrist, chief of the Gaelic Scots. (2) The ancient name of part of Argyllshire, founded by the Dalriads of Ireland about 498. They were defeated at Magh Rath, co. Down, in 637, but in 843 united with the Picts, under Kenneth MacAlpin, and formed the kingdom of the Scots of Alban.

Dalry: (1) A tn. of Ayrshire, Scotland, 19 m. S.W. of Glasgow, on the r. b. of the R. Garnock. The iron works were established in 1845. The

tn. has also tweed and hosiery mills, and collieries. Pop. 4819. (2) A vil. of Kirkcudbrightshire, Scotland, 4 m. N.W. of New Galloway. Pop. 540.

Dalrymple, Alexander (1737-1808), a British hydrographer, b. at New Hailes, near Edinburgh. In 1759 he was sent on a voyage of observation through the eastern islands; hydrographer to the East India Company, 1779. He received a similar appointment in the Admiralty, 1795, which was summarily withdrawn in 1808. The humiliation of dismissal evidently occasioned his death.

Dalrymple, Sir David, Lord Hailes (1726-92), a Scottish judge and historical antiquary, the great-grandson of the first Viscount Stair. He was called to the Scottish Bar in 1748, becoming judge of the Court of Session as Lord Hailes in 1766. He served with ability, if not with distinction, but he is chiefly remembered for his literary work, his friendships, and his controversies. He thought Hume's *Inquiry* atheistic, and refused to revise it in 1753 on that ground. He was much esteemed by Dr. Johnson, who, nevertheless, adjudged him below Goldsmith as an historian, and who revised his chief work, *Annals of Scotland*, 1776.

Dalrymple, Sir James, first Viscount Stair (1619-95), a Scottish lawyer and politician. He was professor of philosophy at Glasgow from 1641-47, when he was admitted an advocate in Edinburgh. He was appointed secretary to the commissioners sent to Charles II. by the Scottish parliament, 1650; Lord President of the Court of Session, 1671. He wrote *Institutions of the Law of Scotland*, 1681; and a Latin work, *Physiologia Nova Experimentalis*, 1686. He was created Viscount Stair in 1690. Consult Graham, *Annals and Correspondence of the Viscount and First and Second Earls of Stair*, 1875.

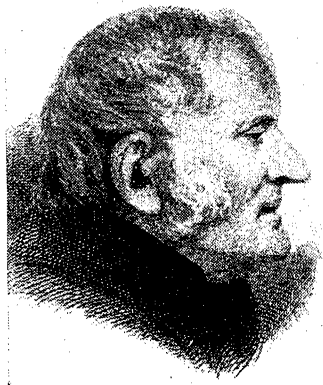
Dalrymple, Sir John, second Earl of Stair (1673-1747), a Scottish general and diplomatist. He was educated at the universities of Leyden and Edinburgh, and in 1701 joined a Scottish foot regiment and served in Marlborough's campaigns. He succeeded to the earldom in 1707, and was made commander-in-chief of the forces of Scotland. He served with high distinction at Oudenarde, Malplaquet, and Ramillies. He acted as British ambassador in France, 1708, and in Holland, 1742, and in 1743 fought at the battle of Dettingen. At his seat in New Liston, Edinburgh, he devoted much time to agriculture, and was the first to plant turnips and cabbages in open fields.

Dalserf, a par. and vil. of Mid-Lanark, Scotland. It stands on the Clyde, 2½ m. from Wishaw, and 7 m. S.E. of Hamilton. A Roman road to Ayr passed through the par., and there are Caledonian forts. Coal and iron are extensively worked, and there are orchards and dairy farms. Pop. 19,465.

Dalswinton, an estate and vil. of Dumfries, Scotland. It is noted as being the place where was launched the first steamboat in Great Britain, by Mr. Patrick Miller, upon a small loch, in 1788.

Dalton, a city of Whitfield co., Georgia, U.S.A., 114 m. N.W. of Atlanta. The surrounding country is rich in minerals, and D. has numerous foundries, mills, and factories. It is also a trade centre for exporting cotton, cattle, grain, and fruit. It was an important military centre during the civil war. Pop. 8160.

Dalton, John (1766-1844), one of the greatest of English chemists, b. at Eaglesfield, in Cumberland. His father was a weaver and Quaker. He himself kept a Quaker school for



JOHN DALTON

a time, and was afterwards partner in a school at Kendal. While at Kendal he commenced (1787) a journal of meteorological observations, the results of which appear in his *Meteorological Observations and Essays*, 1793, and other works. In 1793 he became a teacher of mathematics and the physical sciences in the Manchester New College, and it was in the following year (1794) that he made known the results of his investigations of colour-blindness, sometimes called Daltonism, from

which he and his brother suffered. In 1801 appeared his important essays, *The Constitution of Mixed Gases*, and *The Expansion of Gases by Heat*, and he followed up these researches by developing the atomic theory as an explanation of the facts of chemical combination. He published his views in his *New System of Chemical Philosophy*, 1808 and 1827. He was elected president of the Manchester Philosophical Society in 1817, received the medal of the Royal Society in 1825 'for his development of the chemical theory of definite proportions,' and was made a foreign associate of the Paris Academy of Sciences in 1830. He was made D.C.L. of Oxford, and LL.D. of Edinburgh. See Life by Millington.

Dalton-in-Furness, a par. and tn. of Lancashire, England, 5 m. from Ulverston. The ruins of Furness Abbey are in the neighbourhood. Much iron ore abounds, and malting and brewing are carried on. Pop. 12,300.

Dalton's Laws are two laws relating to the behaviour of gases. The first law is known as the Law of Partial Pressure. It states that, in a mixture of gases, each gas exerts the same pressure as it would if it occupied the total volume; in other words, the total pressure of the mixture is the sum of the partial pressures of each gas. Dalton's second law, usually known simply as 'Dalton's Law,' states that if a mixture of gases is placed in contact with water or any other solvent, then the amount of each gas dissolved and the solvent is directly proportional to the partial pressure of that gas. Dalton's Law is an extension of an earlier law stated by W. Henry, viz. that the amount of gas dissolved by a solvent is directly proportional to the pressure of the gas.

Daly, Sir Henry Dermot (1821-95), a British general, b. at Daly's Grove, co. Galway, Ireland. During the Indian Mutiny he distinguished himself at Delhi, where he was twice wounded. At the capture of Lucknow he was in command of a regiment of Hodson's Horse, and on the death of Hodson took command of the three regiments in the Oudh campaign.

Daly, John Augustin (1838-99), an American theatrical manager and playwright, b. at Plymouth N., Carolina, U.S.A. He became dramatic critic to various New York papers—the *Sunday Courier*, *Express*, *Sun*, *Citizen*, etc.—from 1859 to 1869, when he opened a theatre, known as Fifth Avenue Theatre. This theatre was destroyed by fire, and in 1874 he opened another, Daly's Fifth Avenue

Theatre. D. had an excellent and most popular company, Miss Ada Rehan being for many years his leading lady. He toured in England and on the Continent with great success, and built Daly's Theatre in Leicester Square, London, in 1893. He was also a clever playwright, and wrote adaptations from Fr. and Ger. plays. His own plays include *Pique*, *The Great Unknown*, and *The Last Word*, and he was also the author of *Woffington: A Tribute to the Actress and the Woman*, 1888.

Dalyell, or Dalzell, Thomas (c. 1599-1685), a Scottish general, who fought on the Royalist side at Worcester (1651). During Cromwell's Commonwealth he enlisted in the Russian army, and fought against the Turks and Tartars. On Charles II.'s accession he returned to Scotland, over which he was appointed commander-in-chief. He harshly repressed the Covenanters and defeated them at Rullion Green, in the Pentlands.

Daly's Theatre, London, opened by J. A. Daly (q.v.) and his New York Company with the *Taming of the Shrew* on June 27, 1893. The theatre was visited by Sarah Bernhardt in 1894, and again in 1895 in Sudermann's *Magda* and Rostand's *La Princesse Lointaine*. From 1896 it produced chiefly musical comedies, which included: *The Geisha*, 1896; *The Merry Widow*, 1907; *The Dollar Princess*, 1909; and others.

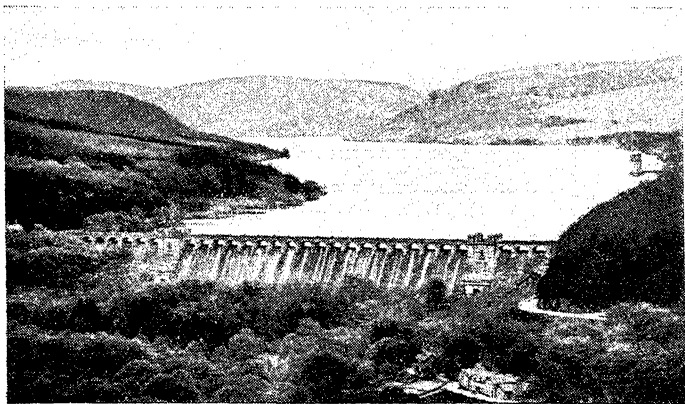
Dalziel, a par. of Scotland in N. Lanarkshire, situated on the Clyde, 12 m. S. of Glasgow. It includes part of Wishaw and Motherwell, and forms the chief centre of the Scottish 'Black Country.' There are large iron and steel works, and the manufacture of heavy iron goods is carried on. There are also sandstone quarries in the vicinity. Traces of the old Roman Watling Street are to be found near by. Pop. 49,556.

Dalziel Brothers, a famous firm of engravers, printers, and publishers, comprising George D. (1815-1902), Edward D. (1817-1905), John D. (1822-1860), and Thomas Bolton D. (1823-1906), sons of Alexander D. of Northumberland, seven of whose sons became professional artists. The original partnership was constituted by George, draughtsman and wood-engraver, and Edward, who, besides being an engraver, also painted in oils and water-colours, and who was responsible for extending the business to include publishing and printing. The authentic signature on the engravings of the D. B. is 'Dalziel sc.,' only their earlier work being signed individually. Both Edward and Thomas were skilled book illustrators, particularly

Thomas, whose best illustrations are to be found in early editions of William Cullen Bryant's poetical works, and Jean Ingelow's poems, and notably in the edition of *Pilgrim's Progress* published by Ward, Lock in 1865, in Dalziel's *Arabian Nights* (1864) and Dalziel's *Bible Gallery* (1880). Woodcuts by George D., who developed his skill under Charles Gray, the engraver, were also executed for the above works. George, though a skilled engraver, had not the original talent of Thomas D., but he was a prolific engraver, producing alone or with his brothers numerous block engravings for many

tions by Tenniel; and Goldsmith's works, from illustrations by George John Pinwell. (See Autobiography.)

Dams. The principal types of dams are (i) Masonry or concrete dams; (ii) Rock-filled dams; (iii) Earth dams. (i) The first type are the most popular for large reservoirs, and, due to the advance in engineering knowledge during the past century they are exceedingly stable and also built in the most economical way. They are generally triangular in cross-section, and the width at any horizontal section of the dam is governed by the consideration of stability; this requires that the resultant of the two



LAKE VYRNWY DAM, NORTH WALES

[Liverpool Corporation

well-known publications, such as the Abbotsford edition of Scott, Charles Knight's *Shakespeare*, and also for the periodicals *Punch* and the *Illustrated London News*, most of which blocks were made after drawings by contemporary artists of established reputation, such as Cruikshank, Doyle and Leech. Later came engravings for the poems of D. G. Rossetti, Burne-Jones and other pre-Raphaelites; for Tennyson's poems (Moxon's edition); Lear's *Book of Nonsense* (1862), and for *Alice in Wonderland* and *Through the Looking Glass*—in which latter connection it may be noted that Edward D. was a fellow student of Tenniel at a London school in early manhood. Other works for which the D. B. made well-known engravings were Staunton's *Shakespeare*, from illustrations by Sir John Gilbert; *Lalla Rookh* from illustra-

stresses or any portion of the dam, viz.: the weight of the masonry above the horizontal section and the force due to the pressure of the water on the fraction of the dam below it under consideration, shall pass within the middle third of the horizontal section. These dams are made water-tight by concreting the water-face and the bottom of the dam. (ii) The second type is cheaper though inferior to the masonry dam. It is concreted on its water-face and its outer face consists of masonry carefully built. The space between the two walls is filled with quarry rock of all sizes. In order to make the dam more water-tight the concrete wall is continued downwards until an impervious stratum is reached. (iii) Earth-dams are the cheapest dams if suitable material is available close at hand. They are rendered water-tight by a core of clay that is

carried downward until an impervious stratum is reached. Damage to the earth dam that would be caused by the overflow of the water after heavy rains is avoided by building a concrete waterway through the dam. (*See also* RESERVOIRS.)

Damages, in law, the pecuniary compensation recoverable for loss or injury by a person who has suffered a legal wrong at the hands of another. General D. are those regarded as naturally consequent on the breach of the right, and not requiring further proof. Special D. are D. for definite loss resulting from the act of the defendant; these must be specifically pleaded and proved. Nominal D. are given when the plaintiff proves a right but fails to prove actual loss. Substantial D. is the term used to represent fully the plaintiff's actual loss. Exemplary or vindictive D. are awarded to punish the offender, in addition to compensating the injured party, and may be given in actions for slander, libel, etc. Apart from cases of this character, the general rule is that the D. must be measured by the loss actually sustained, and that D. must be awarded on the principle that the injured party should be placed as nearly as possible in the position in which he would have been if the wrong had not been sustained. Another rule is that in a case where several persons are equally concerned in committing an injury, each is liable for the full amount. D. are recoverable for a breach of contract, a civil wrong, or a delict. Injury sustained through the want of ordinary skill on the part of a professional man is admissible as a cause of action.

Damage to Property, *see* MALICIOUS INJURIES TO PROPERTY.

Daman, or **Damão**, a Port. settlement on the W. coast of India, in the prov. of Gujarat, on the Gulf of Cambay. In the district are the forests of Nagar Havali, which provide teak for shipbuilding. Tobacco is grown, and there are fine fisheries outside the harbour. Daman was first occupied by the Portuguese in 1558, and was finally ceded by the Marathas in 1780. Area of the district 169 sq. m. Total pop. 68,000.

Damanhur, or **Demanhoor**, the cap. of the prov. of Beherah, Lower Egypt, on the Mahmudieh Canal, and on the railway line between Cairo and Alexandria. It has trade in cotton and woollen goods. Pop. 51,720.

Damaraland, a ter. forming part of S.W. Africa. It extends inland from the Atlantic Ocean to the Kalahari desert, and lies between Namaqualand and Ovampoland.

Part of the E. district is very mountainous; further inland lie well-watered prairies. The chief industry of the Damaras (or Herero), a nomadic tribe of Bantu stock, is cattle raising. Copper is found near Otavi, but the chief products of the country are feathers, skins, and ivory. Walfish Bay is the only good harbour. The chief settlements are Windhoek, Omaruru, Ojimbingue, and Otavi.

Damascening, or **Damaskening**, a word referring to the watered lines on blades of weapons, and also to the gold and silver decorations that are incrustated on blades. The word is derived from Damascus, where the art originated and was discovered by Europeans at the time of the Crusades. The watered pattern is produced by the process of forging, welding, and soldering rods of iron. The rods are twisted and then welded into one, leaving a fine watered or damascened surface. The gold and silver incrustations with which blades and hilts are ornamented are practised in India and Persia. Gold or silver wire is laid on to a design which has previously been cut or scratched into the surface, and then the wire is hammered into position. Consult Hendley, *Damascening on Iron and Steel*, as *Practised in India*, 1892.

Damascenus, **Joannes**, known as **Chrysorrhoeas** (The Golden-Flowing), *see* JOANNES DAMASCENUS.

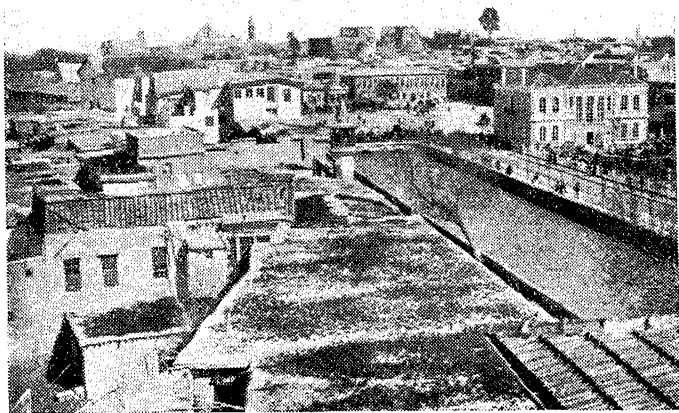
Damascenus, **Nicolaus**, a philosopher and historian of the Augustan age and a friend of Herod the Great; the dates of his birth and death are unknown, and almost all our information of him is gathered from Josephus, Eusebius, and others who mention him. He wrote various works in Gk., philosophical and political in character, of which none are extant; an autobiography, of which portions have been preserved by Guidas and Josephus; and a universal history in 144 books, of which a few fragments remain. The best edition of the extant portions of D. is that of J. C. Orelli (Leipzig), 1804.

Damascus, the chief town of Syria, known among the natives as Esh-Shâm. According to Josephus, it was founded by Uz, the son of Aram and grandson of Shem. On three sides of the city rise the heights of Anti-Lebanon, whence comes the Barada R., spreading itself in seven branches over the great plain. Two of these branches are identified with the anct. Abana and Pharpar mentioned in the Bible. The plain of D., 500 sq. m. in area, is dotted with towns and villages, and is extremely fertile. The city, with its wooded background, presents a picturesque spectacle, for it has numerous

mosques and other public buildings, many of which are of considerable interest. The Great Mosque, with its dome 120 ft. high, was originally erected in the beginning of the eighth century by the calif Walid 'Abd-el-Melik. It took the place of a Christian church, which, in turn, had replaced a heathen temple three centuries earlier. The building has several times suffered from fire, notably at the hands of Tamerlane in 1401. In the S.W. suburb of Méidan is 'the Gate of God,' through which the Hajj, the great pilgrimage to Mecca, sets out. The tomb of Nûr

plums). Pop. about 250,000, chiefly Mohammedans.

History.—After being the centre of struggle between the Moslems and Tartars, D. became the capital of Syria within the Ottoman Empire. Turkish dominion continued until Oct. 1, 1918, when D. was occupied by the allied troops under Allenby and the Arab troops under the Emir Feisal. Feisal established an Arab National State and reigned for nearly two years. Meanwhile the Fr. had obtained the mandatory control of the Syrian sea-board with headquarters at Beyrout, and friction



DAMASCUS

ed-Din is one of the relics of the city, while another place of interest is the 'street called Straight' (Acts ix. 11), which runs a mile through the city from E. to W. Commercially, D. occupies an important position, being a great meeting-place for the caravans from Bagdad and the E. and the traders from the W. It is now the centre of several motor-routes, and air and rail communications have been developed. Electric light and other European amenities have also been introduced. The chief exports are grain, flour, inlaid wood, silken and cotton manufactures, the apricot, and other fruits. Its industries include the production of metal work, mother-of-pearl inlaid work, gold and silver work, perfumes, attar of roses, carpets, etc. D. gives its name to damsons (Damascene

between the Fr. and the Arabs led to the occupation of D. on July 25, 1920. Feisal fled to Bagdad. The problems confronting the Fr. administration of Syria were largely religious. The Fr. as traditional champions of the Maronite Christians of Lebanon came into conflict with the Moslems and with the Druses, a religious sect inhabiting the mountainous country of Jebel Druz. A Druse rebellion broke out, and the insurgents expected to find active support in D., eventually gaining an entrance into the city. D. was bombarded on Oct. 18, 1925, and about 25,000 houses were destroyed. General Sarrail, the Haut Commissaire, was recalled, but trouble continued, followed by a second bombardment of D. in May 1926. Since then reconciliatory measures

have been introduced, and D. settled down to a period of material prosperity.

Damask, the name given to certain types of fabric with ornamental patterns. The term originated with the rich figured silks of Damascus, and was formerly applied to silk fabrics only; now the name is used also for woollen, linen, and cotton stuffs with floral or other patterns woven in the loom. Ds. are now chiefly used for table-cloths, curtains, and upholstery coverings. Table linen Ds. are manufactured at Belfast, Dunfermline, and Barnsley; cotton Ds. at Glasgow, Paisley, and in Lancashire; woollen Ds. around Bradford and Halifax; and silk Ds. near London. The industry was introduced into England in the sixteenth century by the Flemish weavers, who fled from the persecutions of the Duke of Alva. Originally it was brought from the E. to Byzantium by the Crusaders, thence it passed to Italy, and thence to France and Flanders.

Damasus I., pope (366-84), was b. in Portugal about 304. He was elected pope by a large majority, but the minority resorted to violence and bloodshed in order to place Ursinus in the papal chair. The Emperor Valentinian I. decided in favour of D. D. defended the faith vigorously against various heresies, was instrumental in bringing about Jerome's Vulgate version of the Bible, and did much for the preservation of the catacombs.

Damasus II., elected pope on July 17, 1048, but succumbed to malaria twenty-three days later.

Dambul, or **Dambula**, a vil. of Ceylon, situated about 40 m. N. of Kandy. It is famous for its cave temples.

Dames of the Order of the British Empire are either Dames Grand Cross (G.B.E.) or Dames Commander (D.B.E.), the feminine counterparts of Knights Grand Cross and Knights Commander. The orders were first given on June 4, 1917, as a reward for various war services, but later they have been conferred for important services rendered to the Empire in divers capacities. H.M. the Queen, Princess Mary, and the Duchess of York have all received the G.B.E., and in 1929 it was held by forty-four commoners also, the first four of whom were Lady Lawley, Lady Paget, Lady Reid, and Dame Katherine Furse, and the latest Dame Helen Gwynne-Vaughan. The D.B.E. was awarded to the Marchionesses of Londonderry, and of Dufferin and Ava, Lady Houston and Dame Sarah Anne Lees on June

4, 1917. Among other holders of this title are Lady Florence Bell, the Duchess of Atholl, Viscountess Rhondda, Dame Clara Butt, Dame Meriel Talbot, Lady Pearson, Dame Henrietta Barrett, Lady St. Helier, Dame Madge Kendal, Dr. Mary Scharlieb, and Dame Laura Knight. In 1929 there were 101 Dames Commander. A complete list of holders of these orders is given in Burke's *Peerage*, and a full account of the Order in Debre'tt's *Peerage*.

Dame's Violet, or *Hesperis matronalis*, a species of Cruciferae, found in Europe and Asia; the flowers are pale lilac in colour and have no scent until the evening. In Britain the double variety is grown in gardens as a hardy perennial.

Damghan, or **Damaghan**, a vil. of Persia, in the prov. of Semnan va Damghan, 45 m. S. of Astrabad. In the vicinity are the ruins of the Parthian capital Hekatompylos. It was of great importance in the time of Shah Abbas. Almonds and pistachios are exported. Pop. 1000.

Damiani, **Pietro** (1007-72), an Italian ecclesiastic. In 1035 he entered the hermitage of Fonte Avellano, near Gubbio, a severe and ascetic establishment, of which he became head in 1043. He soon went into political life, entering upon a correspondence with the Emperor Henry III., and in 1049 writing to Pope Leo IX., *Liber Gomorrhianus*, in which he denounced the vices of the clergy. In 1058 he became a cardinal and Bishop of Ostia, and gained a signal victory for papal authority at the Council of Milan in 1059. His collected works, which are mainly directed against simony and the marriage of the clergy, appeared in four volumes at Rome, under the editorship of Cardinal Cagetan, in 1606-15.

Damien, **Father** (1841-89). Joseph D. was b. at Louvain, Belgium, and in 1873 was sent out by the Rom. Catholic Church as a missionary to the lepers in the is. of Molokai, Hawaii. In 1885 he himself caught the disease, of which he ultimately died. R. L. Stevenson wrote a fine eulogy of him in his *Open Letter to the Rev. Dr. Hyde*, Sydney, 1889. Consult the *Biographies* by E. Clifford, 1889; Cook, 1889; Father Pamphile, 1889; and *The Lepers of Molokai*, by Stoddard, 1885.

Damiens, **Robert François** (1714-57), a Frenchman who attempted to assassinate Louis XV. He was b. near Arras, and began life as a soldier, and later as a menial servant in Paris. On January 5, 1757, as Louis was stepping into his carriage to leave Trianon, D. stabbed him

with a knife. He was caught and a horrible sentence passed on him by the Parliament three months later. His hand was burnt slowly, and he was tortured by having his flesh torn off with red-hot pincers, melted oil, lead, and resin being afterwards poured into the open wounds. His body was then torn to pieces by four horses. It was alleged that the Jesuits had instigated him to perform the crime, but D. himself asserted that he had been aroused by the king's conduct towards Parliament.

Damietta, a tn. and port of Lower Egypt, on the chief E. branch of the Nile, lying between the r. b. of the river and Lake Menzaleh. It is about 10 m. from the sea, but has been superseded as a port by Port Said and Alexandria. It still contains busy bazaars, has a considerable export trade in rice, and manufactures cotton, silk, and pottery. The material known as dimity received its name from D., where it was formerly manufactured. The old town was fortified by the Saracens, but was several times taken by the Crusaders. Louis IX. captured the town in 1249. When it was restored to the Saracens in 1250 they razed it to the ground, and it was rebuilt on its present site. Pop. 29,000.

Damiri, **Kemal Ed-din Mohammed Ibn Isa** (1349-1405), an Arabian jurist and naturalist. Spent his life in Egypt, being Professor of Tradition at the Rukniyya in Cairo and at the Moslem University of El Azhar. Belonging to the Shafite school of law, he wrote a commentary on Nawāwī's *Minhāj ul-Tālibīn*, but is chiefly remembered for his literary and digressive *Hayāt ul-Hayawān* (Life of Animals).

Dammar, the name given to four species of *Agathis*, coniferous trees from which much resin is obtained. The *A. Australis*, or Kauri pine, produces very hard wood used for paving and masts, and is found in New Zealand and Australia. *A. Dammaris* produces resin and gums which are used as pitch and tar on ships and also in varnish; it has many other chemical derivatives. It is aromatic and is used in the East as incense.

Damme, formerly the port of Bruges, but now merely a vil., in Belgium, situated in the prov. of Flanders, 5 m. from Bruges. It once ranked among the important European ports, the Zwyn communicating with the North Sea. The channel silted up and the port was closed, Antwerp taking its place. Pop. 1150.

Damnonii, **Dumnonii**, or **Damni** :

(1) An anct. British tribe inhabiting

the W. peninsula (modern Devon and Cornwall), and having Isca Dumnoniorum (modern Exeter) as their capital. (2) An anct. tribe of Perthshire, inhabiting Monteith, Strathearn, and Fotherif (i.e. the W. part of Fife and Kinross), and having Alauana (Allan), Lindum (Ardoch), and Victoria (Lochore or Perth) as their chief towns.

Damnum absque Injuria (Lat., damage without wrong) denotes damage done to a person for which the law provides no remedy. The correlative legal maxim is *ubi jus ibi remedium*, i.e. where there is a right there is a remedy. In the exercise of one's ordinary rights much inconvenience and damage must often be caused to other persons without thereby incurring liability, e.g. opening a shop in competition with a neighbour in the absence of express agreement to the contrary may result in damage, but such damage would be D. A. I. Again, the interception or draining off on his own land by a landowner of water collected from underground springs in a neighbour's well would also be D. A. I.; and generally the principle applies in a number of cases where a man uses his own property to the prejudice of his neighbour.

Damocles, a favourite of the elder Dionysius, tyrant of Syracuse. The story of how Dionysius, in order to illustrate what kind of happiness wealth and birth brought to princes, placed his sycophant at a luxuriously spread table over which hung a naked sword by a single horse-hair, is told by Cicero and referred to in Horace's *Odes*.

Damodar, a riv. of Bengal, India, with a length of 350 m. It joins the Hugli close to Calcutta, the chief tributary being the Barakhar. The most important coalfield of India lies in the valley of this river.

Damoh, a tn. of British India, and the cap. of the Damoh dist. in the Central Provinces. There are manufactures of pottery, and also dye-works and a cattle market. Pop. 17,000.

Damon : (1) A Pythagorean of Syracuse, whose name is always associated with that of Pythias, properly Phintias. The latter was condemned to death for plotting against Dionysius, tyrant of Syracuse, but was allowed to go and settle his domestic affairs while D. remained, pledging his own life for the return of his friend. Phintias came back just in time to redeem D., and Dionysius was so much impressed by their love for each other that he pardoned Phintias. Their love for each other has become proverbial. (2) An Athenian

musician and sophist, a teacher and close friend of Pericles. He was banished from Athens about 430 B.C.

Dampier, the name of certain places in Australia, which have been called after William Dampier (*q.v.*): (1) An archipelago off the N.W. coast of Australia, comprising Rosemary (12 m. from the mainland), Lewis, Depuch, Legendre, Enderby, and several small rocky is. (2) An is. off the N.E. coast of Papua; is volcanic. (3) Dampier's Land, a peninsula of Australia, lying between the Indian Ocean and King Sound. (4) A strait between the is. of Papua and Waigia, 70 m. long and 35 m. broad. It affords the safest passage between the Indian and Pacific oceans. (5) A strait which separates the E. coast of Papua from the archipelago of New Britain.

Dampier, William (1652-1715), an Eng. mariner and adventurer, *b.* at E. Coker, Somersetshire. He went to sea at an early age, and after voyaging to Newfoundland, Jamaica, and other places, he took part in buccaneering expeditions in Central and S. America. He was marooned on the Nicobar Is. in 1688, but managed to reach Atcheen, and returned to England in 1691. In 1699 he was sent by the Admiralty to explore around Australia and New Guinea, and he gave his name to the Dampier Strait and Archipelago. On his way back he was wrecked on Ascension Is., but was rescued two months later. After an unfortunate expedition to the South Seas in 1703-7, he made his last voyage as pilot to Woodes Rogers (1708-11) in a privateering expedition. D. was associated with Alexander Selkirk (immortalised as Robinson Crusoe), who was rescued on his last voyage. *A Voyage round the World* (1697) was D.'s chief work.

Dampremy, a tn. of Belgium, in the prov. of Hainaut, 1 m. from Charleroi. Coal is extensively worked. Pop. 13,500.

Dampt, Jean Baptiste Auguste (*b.* 1854), a Fr. sculptor who has executed some curious busts, part of which may be carved in ivory and part in wood. He sometimes colours his work with silver or gold ornaments, or with jewels. He also carves fine chairs, tables, etc. 'Le Temps passe emportant l'Amour' (1898) is a bas-relief in marble; 'Dagnan-Bouveret' is a fine bust, executed in silver. Among his statues are 'Diane pleurant Actéon,' 'Faunette,' and 'Mignon chantant la patrie,' 1884.

Damrosch, Leopold (1832-85), a Ger.-American violinist and composer, *b.* in Posen, Prussia. In 1871

he went to New York, where he founded the Oratorio Society (1873), the Symphony Society (1877), and the Ger. Opera (1884). He wrote several cantatas and pieces for the violin.

Damrosch, Walter Johannes, American musician; *b.* at Breslau, Silesia, Jan. 30, 1862; son of Dr. Leopold D. Walter's earliest musical teachers were: his father, Rischbieter, and Hans von Bülow. In Aug. 1871, Dr. D., being appointed conductor of the Arion Society, removed to New York with his family. Walter became conductor of Newark (N.J.) Harmonic Society, 1881; and, on his father's death in 1885 succeeded him as musical director of the Oratorio and Symphony Societies. Gave lecture-recitals, 1890. Founded Damrosch Opera Co., 1894. Wagner performances, 1896. Since 1903, has devoted himself to N.Y. Symphony Orchestra. Founded school for military bandmasters during the Great War. Composed: *Manila Te Deum*; *Cyrano* (opera); and incidental music to Euripides' *Medea* and *Iphigenia in Aulis* (1915), and to Sophocles' *Electra* (1917). Published *My Musical Life*, 1923.

Damson, or *Prunus Mahaleb*, a variety of *P. domestica*, the plum, which is a member of the order Rosaceæ. The plant is hardy, propagating largely by suckers, the bark is fragrant, and the fruit is late and abundant. The Damascene plum, as it is often called, is eaten raw, stewed and preserved. A species of Simarubaceæ, the *Simaruba amara*, a native of the W. Indies, is known as the mountain or bitter damson.

Dan: (1) A tribe of Israel, descended from its eponymous ancestor, D., the son of Jacob and Bilhah. The tribe settled in the valleys of Sorek and Ajalon, but spread northwards to Laish, which it rebuilt as D. (*see* Gen. xiv. 14, xxx. 5, 6; Judges i. xviii., etc.). (2) The most N. limit of Israel (*cf.* the phrase 'from D. to Beersheba'), near the sources of the Jordan. The site is identified with the hill Tel-el-Kadi, 3 m. W. of Baniās. (3) A trib. of the R. Roanoke, N. Carolina and Virginia, U.S.A.

Dana, Charles Anderson (1819-97), one of the most famous of American editors, *b.* Hinsdale, New Hampshire, U.S.A., Aug. 8, 1819. Studied at Harvard University and then entered journalism, serving on the *New York Tribune* in 1847. In 1849 he became its managing editor, and held that position until 1863, taking a strong line against slavery. On his resignation, Secretary of War Stanton employed him on various important missions and made him

an assistant secretary in 1864. In 1868 he became editor and part owner of the *New York Sun*. For the brilliancy of his own editorials and for the high standard of writing he enforced on his staff, the *Sun* for years was known as the American newspaper man's bible. Of queer and fiery temperament, D. was savagely independent. He opposed the impeachment of President Johnson when that was an unpopular thing to do. He favoured General Grant's election in 1868 and opposed him in 1873. He opposed Cleveland for the Presidency in 1884 and supported him in 1888. He *d.* Oct. 17, 1897.

Dana, Francis (1743-1811), an American jurist, *b.* in Charlestown. He was War Secretary to John Adams, and was Minister Plenipotentiary to Russia. Chief Justice of Mass. Supreme Court, 1791-1806.

Dana, James Dwight (1813-95), a celebrated American naturalist, mineralogist, and geologist; graduated at Yale, 1833. From 1833 to 1835 he was mathematical instructor of the midshipmen of the U.S.A. navy in the Mediterranean. D. went as scientific observer on the U.S.A. exploring expedition under Wilkes (1838-42), visiting the Antarctic and Pacific. With his father-in-law, Silliman, he edited *American Journal of Science*, 1846, and became Professor of Natural History (later of Geology) at Yale about 1845. Among his works are: *Reports on the Geology of the Pacific*, 1849; *On Zoöphytes*, 1846; *On Crustaceans*, 1852-54; *System of Mineralogy*, 1837; *Manual of Mineralogy*, 1848; *Textbook of Geology*, 1864; *Coral and the Coral Islands*, 1873; *Hawaiian Volcanoes*, 1890. D. was an honorary member of many prominent scientific societies of Europe. See *Life of J. D. Dana*, by Gilman, 1899.

Dana, Richard Henry (1787-1879), an American poet and essayist; educated at Harvard, then left and studied law at Boston, being called to the Bar in 1811. He was associate-editor of the *North American Review*, 1818, to which he contributed largely. His *Dying Raven* appeared in 1821; *The Buccaneer* in 1827, in a volume of poems published that year. An edition of his works was published in 1833, containing pieces which originally appeared in *The Idle Man*, 1821-22. He gave ten lectures on Shakespeare, in U.S.A., 1839-40. His collected works were published in 1850, including *Thoughts on the Soul*, 1829, and the prose *Paul Felton*. He was perhaps at his best as a critic, but his own works did much to elevate the literary taste of New England, and were highly praised in *Blackwood's*

Magazine, 1835. See Griswold, *Poets of America*, and *Prose Writers of America*; Duyckinck, *Cyclopædia of American Literature*; Allibone, *Dictionary of Authors*.

Dana, Richard Henry (1815-82), an American author, lawyer, and politician, son of the poet (*d.* 1879). He was especially distinguished in maritime law. His sea-classic, *Two Years before the Mast*, 1840, gave an account of his voyage. Other works were: *The Seaman's Friend*, 1841; *To Cuba and Back*, 1859; and an edition of Wheaton's *Elements of International Law*, 1866. D. was one of the founders of the Free Soil party (1848), and acted with the Republicans in the presidential election of 1856. See Adams, *R. H. Dana: a Biography*, 1890.

Danaë (Δανάη), in Gk. mythology, daughter of Acrisius, King of Argos, great-grandson of Danaus. An oracle having foretold that her son should slay Acrisius, the latter imprisoned D. in a brazen tower, but Zeus (Jupiter) visited her in the form of a golden shower, and by him she became the mother of Perseus. At the child's birth she was cast adrift at sea with him in a chest, but they drifted in safety to Seriphos Is., where a fisherman, Dictys, gave them shelter. They lived here till Perseus grew up, and then returned to Argos, where he accidentally killed Acrisius at Larissa. There are many famous paintings of D., including Rembrandt's, Correggio's, and two of Titian's.

Danaides (Δαναίδες), in Gk. legend, the fifty daughters of Danaus, who married the fifty sons of their uncle, Ægyptus. To avoid being slain by a son-in-law, as the oracle predicted, Danaus bade his daughters kill their husbands on the bridal night. All obeyed except Hypermnestra, who spared Lynceus. According to later writers, they were condemned for this crime in Hades to fill bottomless vessels or sieves with water perpetually. See Keightley, *Mythology, Dictionary of Classical Antiquities* (translated from Seyffert), 1906; Æschylus, *Suppliques*.

Danákil (singular, Dankali), a name now generally used for the many nomad and fisher tribes living on the coast of N.E. Africa, from Massowah S. to Tajurrah Bay, and thence S.W. to Shoa, in the arid region between Abyssinia and Obock. They are a Hamitic tribe of the Ethiopian branch, well built and slender, with features indicating intermixture of Arab blood. They claim to be Arabs and Mohammedans, but are really pagans, living by caravan- and slave-trade, and largely on the milk of

their own flocks. Their native name is Afar. For language see Isenberg, *Vocabulary*, 1840. Consult also Scaramucci and Giglioli, *Notizie sui Danachili*, 1884.

Danaus (Δαναός), in mythology, son of Belus and grandson of Poseidon, joint-king of Egypt with his brother, Ægyptus. Jealous of the power of the latter's fifty sons, or terrified by an oracle, he fled to Argos (home of his ancestress, Io), and became king there. He gave his fifty daughters in



DANAID

marriage to his brother's sons, commanding them to kill their husbands on the wedding night (see DANAIDES). He was said to have reigned about fifty years, and to have first taught the people to dig wells. D. was considered the founder of Argos, and ancestor of the Danai. See Roscher, *Lexikon der Mythologie*.

Danbury, co. seat of Fairfax co., Connecticut, U.S.A., situated on the

R. Still. The most important industry is the manufacture of felt hats, which has been carried on for many years. Silver-plated wares are also made. There is a State Normal School. Pop. 22,261.

Danbury News Man, see BAILEY, JAMES MONTGOMERY.

Danby, Francis (1793-1861), an Irish landscape and historical painter. He exhibited at Dublin, in 1812, 'Landscape—Evening'; starting for London in 1813 with O'Connor and Petrie. Through lack of money he settled at Bristol for some years. His 'Upas Tree' (S. Kensington Museum) was shown at the British Institution in 1820; 'Disappointed Love' in the Academy, 1821. After the 'Delivery of Israel out of Egypt,' 1825, he became A.R.A. Other works are: 'Golden Age,' 1831; 'Sunset at Sea after a Storm,' 1824; 'Embarkation of Cleopatra on the Cydnus,' 1827; 'The Deluge,' 'Departure of Ulysses from Ithaca,' and 'The Evening Gun,' 1848; 'Fisherman's House, Sunset' (National Gallery), 1846. His three sons were also painters. See *Art Journal* (April 1861); Blanc, *L'École Anglaise*; Sandby, ii. 68.

Danby, Frank (Mrs. Julia Frankau) (1864-1916), Eng. novelist. Her best novels are: *The Heart of a Child*; *Pigs in Clover*; *The Sphinx's Lawyer*; *Let the Fall In*; and *Joseph in Jeopardy*.

Dance, George (1700-68), an architect to the City of London; designed the Mansion House (1739), the old excise office in Broad Street, and several London churches.

Dance, George (1741-1825), the younger, succeeded his father as architect to the City of London; rebuilt Newgate Prison (1770-83), and was Professor of Architecture at the Royal Academy (1798-1805). His last years were devoted to portraiture.

Dance, Sir Nathaniel (1748-1827), an Eng. sailor, son of Dames D. (d. 1774), grandson of George D. (d. 1768). He entered the E. India Company's service, 1759, commanding a ship, 1787. While commanding the E. India Company's homeward bound fleet (1804), he defeated a strong Fr. squadron of men-of-war off Pulo Aor, and reached St. Helena safely. See *Gent. Mag.* (vol. xcvi. 1), 1827; Markham's *Sea Fathers*; James, *Naval Hist.*, iii., 1860; Marryat, *Newton Forster*.

Dance of Death, the name of a dramatic or pictorial allegorical representation of the universal power and supremacy of Death over mankind, first presented as a church play (see MIRACLE PLAY and MORALITY), dating from about the fourteenth century. It came to be most fre-

quently represented with music and dancing, and all the adjuncts of a festival, to point the contrast all the more sharply. It is supposed that the seven brothers of the Book of Maccabees (ii. 7) played an important part in a representation of the kind, or else the first representation, which took place at the Monastery of the Innocents, Paris, fell upon their festival. Hence the origin of the name 'Chorea Machabæorum,' or 'Danse Macabre,' by which it is frequently known. The dramatic form consisted of short dialogues between Death and about twenty-four followers, representing all ranks of mankind. In Spain it appeared as 'La Danza General de los Muertos.' The drama lasted on till about the fifteenth century. In Germany the subject was treated most often. The representations on the cloister walls of the Kilngenthal (Basal Convent) date from 1312. There is an example in one of the chapels of the Marienkirche at Lübeck, much resembling one at La Chaise Dieu in Auvergne of fourteenth century date. In 1425 a series of pictures was painted on the walls of the Monastery of the Innocents. A 'Triumph of Death' (wrongly ascribed to Andrea Orcagna) is in the Pisan Camp Santo, dating from the fourteenth century. Similar frescoes were executed in London after 1430. In Henry VI.'s reign there was one round the cloisters of Old St. Paul's. The Tower of London, Croydon Archbishopal Palace, Hungerford Chapel (Salisbury), Wortley Hall (Gloucestershire), and Hexham (Northumberland) also had examples. Holbein's fifty-two sketches for engravings are especially famous and original in design—the 'Imagines Mortis' (originals at Leninigrad). The first series was engraved by Lützelburger, 1520; the larger was published at Lyons (1538) in book form. A modern representation is that of Rethel, 1848. The subject has been treated in music by Saint-Saëns. Rowlandson's *English Dance of Death* (1815-16) is a modern adaptation. See De Méchel, *Œuvres de J. Holbein*, i., 1780; Peignot, *Recherches sur les Danses des Morts*, 1826; Massmann, *Baseler Todtentänze*, 1847; Douce, *Holbein's Dance of Death*, 1833; Seelmann, *Die Todtentänze des Mittelalters*, 1893; Goethe, *Der Todtentanz*.

Dancetté (from Lat. *dens*, tooth), one of the lines of partition in heraldry, differing from 'indented' only in the greater width and depth of the indentations or notches. The 'fesse dancetté' has only three indentations. They are arranged like the zigzag or 'chevron' moulding,

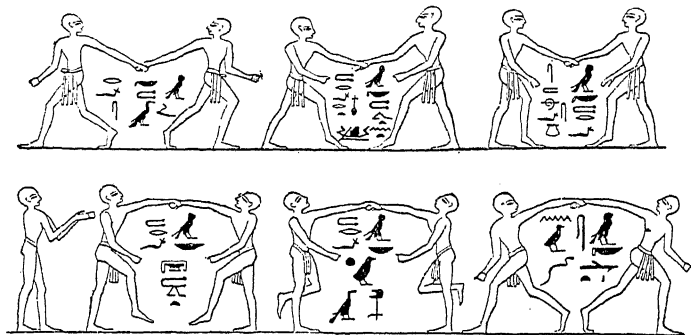
a common ornamentation in Saxon and early Norman architecture. See Gullim, *Heraldry*, ii. 3, 1660; Boutell, *Heraldry Hist. and Pop.*, xiv., 1864.

Dancing, which is patently the expression of a universal instinct for rhythmical movement, is variously practised as an exercise, a pastime, and an art. In its earliest forms it was an expression of strong emotion, and hence came to be associated with religious or patriotic feeling. In the latter class may be placed the many national dances which still survive, not a few of which have been developed and perfected in that nursery of modern D., the Fr. capital. We still have the national dances of the Bohemian, Hungarian, Italian, Spanish, and Polish peasantry, the Basque mutchiko, the Scottish reel, the Highland fling, the Irish jig, and the hornpipe of the Eng. sailors. Inspiration for battle has often been sought among civilised races by means of the dance. War-dances have flourished among the American Indians, the Maoris, and other races, while Ceylon has had its 'devil dancers,' and Mohammedan countries their 'whirling dervishes.' The religious dance was known among the Israelites; it found a place in the processions to the Egyptian temples, and it was cultivated by the Gks. D. has never found any permanent place in Christian rites, but has often been known in Christian ceremonies. Carol dances were practised by the early Christians. Until 1737 *la bergette* was danced at Besançon at Easter. At Seville Cathedral, during the Corpus Christi Octave, a ballet is still danced every evening before the high altar, and a religious dance also survives at Alaro in the Balearic Isles. The ballet of the modern theatre, in which posturing and mimetic action are combined and D., had its beginning in the fifteenth century, though it may be said to have been foreshadowed to some extent by the pantomimes of the Romans, and in the religious and dramatic representations of the Gks. In 1489, on the occasion of marriage festivities, a ballet dance was given before the Duke of Galeazzo of Milan at Tortona. This appears to be the first record of ballet on any considerable scale. The fame of the performance spread far and wide, and thereafter the ballet became a favourite entertainment on great occasions and celebrations. The dance, which had passed from the Romans to the national theatre of the Italians, passed thence to France, where it flourished as it has done nowhere else. The ballet was introduced into France by Catherine de Medici. Louis XIII. and Louis XIV.

were fond of the ballet to excess, and it was in the reign of the latter, himself an enthusiastic dancer, that D. reached the height of its popularity in France. In the middle of the eighteenth century, Noverre did much for the ballet, and introduced the *ballet d'action*. Among the oldest of Eng. dances is the morris dance, which was much in vogue in mediæval Europe, and was introduced into England in the time of Edward III. The name refers to its Moorish origin. Sir Roger de Coverley is another old Eng. dance that has survived to the present day. The waltz became popular in the days of Napoleon; it came to England from Germany, but was Provençal in origin. The polka is a Bohemian national dance, and

bottom. The *two-step* was, of course, entirely unobjectionable, and, though hailing from America, was not negroid in origin. The *tango* came from S. America, but was greatly modified before it could be introduced into European society.

Stage dancing has undergone many changes in popularity. Isadora Duncan, from San Francisco, derived her inspiration from the anct. forms of Greece, and her wonderful rhythmic posturings evoked much admiration. Adeline Genée, a Danish dancer, was the perfection of lightness and grace in her exquisite ballet dances. Lole Fuller, an American dancer, was the pioneer of the 'Serpentine' dance; Ruth St. Denis gave representations of nautch and other Oriental dances;



EGYPTIANS DANCING

was much in vogue half a century ago, but, with country dances and quadrilles, it has declined in popularity. The cotillon has been revived and developed from the old Fr. dance of that name. The lancers was brought to England in 1850 from Paris, where it had originated about fifteen years before. The pavane, the coranto, and the minuet have had their day, though the last named, which at one time was brought to great perfection in France, has not entirely died out. Some of the old homely dances of Queen Elizabeth's time have left traces in children's games, such as 'kiss in the ring' and 'hunt the slipper.' A year or two before the Great War, ballroom dancing in England became more lively in spirit and much less graceful in form. Various dances were introduced from America having their origin in the uncouth dances of the negroes: such were the *turkey-trot*, the *bunny-hug*, the *fox-trot*, and quite recently the *black*

Maud Allan raised much controversy by her astounding 'Vision of Salome.' The Russian ballet in 1910 took London by storm with its fairylike nature and graceful freedom of movement: Mordkin and Nijinsky, Karavina, Lopokova and Pavlova were the leading exponents of their art. See BALLETS and RAGTIME.

Dancourt, Florent Carton (1661-1725), a Fr. actor and dramatist, b. at Fontainebleau of good family. He was educated for the legal profession, but when he appeared at the Théâtre Français in 1685 his gift for comedy at once brought him success as an actor. One of his greatest successes was as Alceste in Molière's *Misanthrope*. He wrote over forty plays, many of which display his genius for depicting peasant characters. Among the best of his plays are: *Le Chevalier à la Mode*, 1687; *Les Bourgeoises de Qualité*, 1700; and *Le Galant Jardinier*, 1704. In his later years D. retired to his château in the country,

and devoted himself to writings of a religious character.

Dandelion, or *Taraxacum officinale*, a cosmopolitan species of Compositæ which differs from such plants as the daisy (*q.v.*) in having all the florets of the head both ligulate and hermaphrodite. It has a tapering, perennial root containing latex, and is sometimes used in the adulteration of coffee. The name is derived from the Fr. *dent de lion*, or lion's tooth, on account of its jagged appearance.

Dandie Dinmont Terrier, called after the character in Scott's *Guy Mannering*, who was founded on a Border farmer, Mr. Davidson of Hindlee, Teviotdale, who had helped to introduce the breed. There are two varieties, 'peppers' and 'mustards,' the former being slate-blue in colour, and the latter yellow. It is a strong muscular dog, a fearless fighter, and somewhat unmanageable. It has in it some bulldog blood. The muzzle is deep and the jaws very strong. The coat is moderately long, and the ears feathered to a point. Weight about 20 lb.

Dändliker, Karl (1849-1910), a Swiss historian, b. at Rorbas. Among his works are: *Geschichte der Schweiz mit besonderer Rücksicht auf die Entwicklung des Verfassungs- und Kulturbens* (3 vols.), 1893, 2nd ed.; *Kleine Geschichte der Schweiz*, 1889 (Eng. trans. 1899). With Müller, he wrote *Lehrbuch der allgemeinen Geschichte*, 1891.

Dandolo, Enrico (c. 1110-1205), a doge of Venice (1192-1205), belonged to a distinguished Venetian family. Though an octogenarian when he became doge, he proved a vigorous and brave ruler; marched at the head of the Crusaders in 1201, and took Constantinople by storm in 1204.

Dandurand, Rt. Hon. Raoul, Canadian barrister; b. 1861, at Montreal; son of Oedipe D. Educ. Montreal College, Laval University (LL.B., 1882; LL.D., 1909), and McGill University. Called to Quebec Bar, 1883; K.C. 1898. Assistant Attorney-General for Quebec Province. Called to Senate by Lord Aberdeen, 1898. Speaker of Senate, 1905-9. P.C., 1909. Leader of Senate in Govs. of Mr. MacKenzie King of 1921 and 1928. President of Assembly of League of Nations, 1925. Wrote *Traité théorique et pratique de Droit*, 1890.

Danebrog (Dan. *brog*, cloth), literally the Danish national flag, red with a white cross. Second of the Danish orders of knighthood, founded by Waldemar II., 1219, in honour of the banner of Denmark which was sup-

posed to have fallen from heaven to inspire the army at the siege of Reval. In 1500 the order was suppressed, but revived by Christian V. in 1671. In 1808 Frederick VI. made it an order of merit for all the Danish people, whether for military or civil services. It has four degrees, and there is besides a class of 'Danebrogsmænd,' who are not strictly members of the order. The decoration is a white enamelled gold cross, suspended by a white ribbon with a red border.

Danegeld, a land-tax, originally levied by Ethelred the Unready for the purpose of buying off the Danes. It was thus levied in 991, 994, 1007, and 1012. It was also used as a method of taxation by Canute, and, after being abolished by Edward the Confessor, was revived by William the Conqueror, and finally abolished under Henry II.

Danelagh, Danelaw, or Danelagu (A.-S. *Dena lagu*, law of the Danes), an anct. name for the territory in England to which Alfred the Great confined the Danes by his wars. It was ceded to King Guthrum after the battle of Ethandun in 878 A.D., and its inhabitants were governed by modified Danish law. It was reduced by Edward the Elder (901-25), revolted in Eldred's reign, but was forced to submit in 954. Deira and Lindsey were the most Danish parts, and Danish place-endings—'thorpe,' 'ly,' 'caster'—are still common. The D. corresponded to about fifteen of our modern counties in the N. and E. (Yorks., Derbyshire, Leicestershire, Norfolk, Suffolk, Essex, Cambridge, Buckinghamshire, Bedfordshire, and others), Watling Street being roughly the dividing line.

Danes, a name given to Scandinavian tribes, especially to the inhabitants of Denmark. In the fifth century A.D. they replaced the Angles and Jutes. They are usually described as a yellow-haired, blue-eyed people of medium height. In the early sixth century they were inhabiting the W. coast of the Cimbrian peninsula. The old Danish language occurs in runic inscriptions, 700-1050, the Viking period. Three marked periods in their history are the Viking period up to Canute (*d.* 1035), time of Waldemar I. and II. (1157-1227), and the fourteenth century. See Weitemayer's *Denmark*, 1891.

Danes' Dyke, see FLAMBOROUGH HEAD.

Danevirke, see DANNEVIRKE.

Dangerfield, Thomas (1650-85), an Eng. conspirator, son of a farmer of Essex. Having robbed his father early in life, he became later a false coiner and a perjurer. He pretended

to have discovered a Catholic plot against Charles II., the pseudo Meal-tub Plot, 1679. Among numerous pamphlets he published *Dangerfield's Narrative*. For this he was tried for libel, and sentenced to be pilloried and whipped (1685). He d. from a blow shortly afterwards.

Dangerous Trades. This term is used in a somewhat technical sense, not including all D. T., but especially those in which some form of poison or disease is incidental to the trade itself, as now carried on. The designation is reserved not so much for trades in which sudden injury or death may result from machinery as for those in which the causes of danger and injury are slower acting. It cannot be applied to the poor sanitation and ventilation incidental to many trades. The Factory and Workshops Act, 1833, was the first real attempt to deal with the question. The Act of 1891 gave the Home Secretary power to make regulations for any industry (not domestic) certified to be dangerous to health. By 1898 the inspectors won forty-nine out of fifty-six cases, and these trades were henceforward classed as 'dangerous.' They include, among various others, manufactures of china, earthenware, white lead, lucifer matches, paint, arsenic, dry cleaning, furrier's work, tanneries, use of grindstones, electric generating works, quarries, bottling, spinning, and weaving. Of industrial poisons lead and lead compounds are the most dangerous, and they concern about 130 trades, including smelting, painting, plumbing, printing, and the manufacture of earthenware. All chemical workers are liable to various affections, especially of the skin. Ulcers are common to those working in pitch and tar, and anthrax is known as the wool-sorters' disease. The coal-miner is subject to numerous accidents and the possibilities of danger, especially from gas-poisoning. Miners, stone-masons and textile workers are subject to dust diseases of the lungs. Cotton is best operated in a humid atmosphere, and the temperature is apt to become dangerously high. Coughs and asthma, accompanied by fever, are sometimes caused by a mould fungus adhering to raw cotton. The Home Office have in Horseferry Road, Westminster, a museum (open free to the public) devoted to the subject of D. T. In 1917 the U.S.A. made an inquiry into the cotton industry, finding the rate of disability for males was 37.7 per 1000 in May and June and for females 34.4, while in Nov. and Dec. the figures were 18.9 and 17.9 respectively. See T. Oliver, *The Health of the Worker*, 1925.

Dangs, The, a tract of land in the presidency of Bombay, India. It includes fifteen petty states, the Bhils being the chief tribe. The district is very thickly wooded, teak and other timber being largely exported.

Daniel, Book of, a book of the Bible composed during the reign of Antiochus IV. (about 165 B.C.) by some Jewish author who wished to give his countrymen some consolation in the persecution they were then undergoing, for Antiochus was making a determined effort to substitute the Greek religion for the worship of Jehovah. Before the days of biblical criticism the book was held to have been contemporary with the period it describes, that of Nebuchadnezzar, King of Babylon, and the following kings. The book falls into two subject divisions: (1) chaps. i.-vi., which tell the history of Daniel at the Babylonian court, where he rises to high rank through his power of interpreting dreams; (2) chaps. vii.-xii., containing four prophetic visions. Chaps. i. and ii. (to v. 4) are written in Hebrew, chaps. ii. (v. 4) to vii. in Aramaic, and the rest in Hebrew. No conclusive explanations have yet been given of this change of language. The most probable theory is that the original work, in Hebrew, was translated into the vernacular Aramaic, and that the translation was used to supply missing parts in the original. The events described in the prophetic visions clearly refer to the events of the reign of Antiochus Epiphanes, and the historical errors are so palpable that it cannot be earlier than the date now assigned to it. It is generally held to be the work of one author. See Commentaries of Bevan, 1892; Behrmann, 1894; Prince, 1899; Haupt's *Sacred Books of the Old Testament*; J. Davis's *Old Testament and Semitic Studies*, 1898.

Daniel, le Père Gabriel (1649-1728), a Fr. author and theologian; entered the Jesuit order in 1667. Louis XIV. gave him a pension and the title of historiographer of France. He wrote *Histoire de France*, 1713, of which many editions and abridgments appeared (see Griffet's, 1750-60). Voltaire criticised it harshly. His *Entretiens de Cléandre et d'Eudoxe*, 1694, was an attempt to refute Pascal's *Provincial Letters*. His *Histoire de la Milice Française* is well known (1721). D. attacked Descartes' views and doctrines. See Sommervogel, *Bibliothèque de la Compagnie de Jésus*, ii.; Joly, *Éloges de quelques Auteurs Français*; Lambert, *Histoire Littéraire du Règne de Louis XIV.*

Daniel, Samuel (1562-1619), an English poet, *b.* near Taunton, Somersetshire. He entered Magdalen Hall, Oxford, in 1579. Leaving the university without a degree, he served as tutor in several noble families, his patrons including the Earl of Pembroke and Lord Mountjoy. He came into favour at court, wrote masques for court festivities, and in 1607 was appointed one of the queen's grooms of the privy chamber. Though most successful as a sonneteer, he was persuaded by Spenser to attempt tragedy, and in 1615 he became concerned in a theatrical company at Bristol. His earliest poems, *Sonnets to Delia* (1592), are among his best. His most ambitious work was a lengthy poetical



SAMUEL DANIEL

History of the Civil Wars between York and Lancaster (1595-1609). His dramatic works include *Cleopatra*, 1594; *Philotas*, 1604; *The Vision of the Twelve Goddesses*, 1604; *The Queen's Arcadia*, 1605; and *Hymen's Triumph*, 1615. His prose works include a *Defence of Rhyme*, 1603, in which he opposed Campion's opinion that the English language was not suitable for rhyme; and a *History of England* (1612). Ben Johnson said he was 'a good honest man . . . but no poet,' but he was praised by Drummond of Hawthornden, and in later times by Coleridge and Hazlitt. See *Selections*, edited by Morris.

Daniell, John Frederick (1790-1845), a scientist, *b.* in London. He invented the D. constant battery, a hygrometer in 1820, and a pyrometer in 1830. He was a fellow of the Royal Society (1813), Copley medalist (1836), and was professor of chemistry

in King's College, London (1831-45). His writings include: *Meteorological Essays*, 1823; and *Introduction to Chemical Philosophy*, 1839, and many valuable papers.

Daniell, William (1769-1837), an Eng. landscape-painter and engraver. D. entered the R.A. Schools in 1799, becoming R.A. in 1822. He published *A Picturesque Voyage to India*, 1801-14; he engraved many of George Dance's portraits. His great work, *Voyage round Great Britain*, was completed between 1814 and 1825. Though his subjects were novel and interesting, his artistic merits were not exceptional. See Redgrave; Sanby, i. 314.

Daniels, Josephus, American democratic politician and littérateur; *b.* 1862, at Washington, N.C.; son of Josephus D. Educated Wilson (N.C.) Collegiate Inst. Editor, *Wilson Advance*, at eighteen. Admitted to Bar, 1885. State printer, 1887-93. Chief clerk Department of Interior, 1893-95. Editor, *Raleigh State Chronicle*, since 1885; consol. with *News and Observer*, 1894. Secretary of Navy under Wilson, 1913-21. Member Democratic national executive, 1896-1916. Works: *The Navy and the Nation*, 1919; *Our Navy at War*, 1922; *Life of Warth Bagley*; *Life of Woodrow Wilson*, 1924.

Danilo, Petrovitch Niegoch (1677-1735), ancestor of the dynasty of Petrovic-Njegös, first hereditary prince-bishop (*vladika*) of Montenegro (1697-1735). He caused the massacre of all Montenegrins who were Mohammedans or partisans of the Porte (1702), and carried on constant fierce wars with the Turks. D. gained the support of Russia (1711), and entered into amicable relations with them.

Danilo I., Petrovitch Niegoch (1826-60), Prince of Montenegro (1851-60), with Russian support succeeding his uncle (Vladika Peter II.), and belonged to the family from which the prince-bishops of Montenegro had been chosen since 1697. D. was educated at Vienna. He declared the line of hereditary prince-bishops at an end on his accession, and began ruling as a secular prince. Fierce war was waged with the Turks from 1852 until, after their defeat at Grahovo (1858), D. obtained the nomination of a European commission to mark a definite boundary between Turkey and the principality. He did much to improve the laws and social condition of his people, issuing the Code Danilo (1855), which resulted in the disappearance of the customary institutions of theft and the vendetta.

Dankara, a dist. of Upper Guinea,

W. Africa, situated on the Gold Coast, with considerable gold mines.

Dannat, William T. (b. 1853), an American artist, b. in New York. He studied at the Royal Academy, Munich, and was later a pupil of Munkacsy at Paris; especially noted as a figure- and portrait-painter. His 'Castanet Dance, a Quartette' (1884) is now in the Metropolitan Museum, New York. Other works are 'Bavarian Peasant' (1878), 'Aragonese Contrabandist' (1883), and a portrait of Vicar-General Thomas Preston.

Dannecker, Johann Heinrich von (1758-1841), a German sculptor, who became professor of sculpture at Stuttgart. He executed busts of Schiller, Gluck, Lavater, Metternich, and other notable personalities. His 'Ariadne on the Panther' and his 'Christ' at Moscow are among his finest work.

Dannemora, a tn. of Sweden in the prov. of Upsala. It is the centre of the most important iron field of the country, and the best iron in Sweden is obtained here. Pop. 1200.

Dannevirke, or **Danewerk** (Dane's Work), an ancient line of earthworks in Schleswig, built originally by the Danes under King Göttrik in the time of Charlemagne (808 A.D.), N. of the Eider, extending for 10 m. from the Schlei to the Treene. It was 30 to 40 ft. high, and thick, erected as a boundary wall and protection against the Saxons, Franks, and other invaders. The original line was from Schleswig to Hollingstedt, but it was enlarged by Queen Thyra in the tenth century. The line was restored 1748, by a system of fortifications, the 'Great' and the 'Little Dannevirke.' During the Schleswig-Holstein War it was evacuated by the Danes, 1864, and soon afterwards levelled to the ground by Prussians and Austrians.

D'Annunzio, Gabriele (Rapagnetta) Prince of Montenevoso, Italian poet, novelist, and dramatist, b. 12 March, 1863, at Pescara, on the coast of the wild region of the Abruzzi, educated at the College of Prato, Tuscany, and at the University of Rome. He is the son of the Duchess Maria Gallese di Roma, of Dalmatian extraction. His first publication, *Primo vere* (verse), 1879, won him notice, and he was welcomed at Rome by the Cronaca Bizantina group. The *Terra Vergine* (1882) was a continuation in prose. *Canto Nuovo* appeared the same year. As a journalist on the staff of the *Tribuna* at Rome he wrote under the name of 'Duca Minimo.' Other pre-war works are: *Intermezzo di Rime*, 1883; *Il Libro delle Vergini*, 1884; *San Pantaleone* (collection of

short stories), 1886; *Il librod' Isotta*, 1886; *Chimera*; *Elegie Romane*; *Poema Paradisiaco*; *Odi Navali*, 1893; *Laudi* (2 vols.), 1904; *L'Orazione e la Canzone in morte di Giosè Carducci*, 1907; *La Canzone di Garibaldi*, 1901. Chief among his novels, which contain vivid descriptions, and show much beauty of style and psychological insight, may be mentioned *Il Piacere*, 1889 (translated into English as *The Child of Pleasure*, 1898); *La Vergine delle Rocce*, 1897 (English translation 1899); *Il Trionfo del Mondo*, 1896; *L'innocente*, 1891; *Il Fuoco*, 1899. Among his tragedies are: *La Gioconda*, 1899; *La Gloria*; *La Città Morta* (written for Sarah Bernhardt), 1898; *Francesca da Rimini*, 1901; *Più che l'amore*, 1906; *Le Martyr de San Sebastian*, 1911. A miscellany entitled *La Leda senza cigno* appeared in 1913. In 1914 he produced a play in Fr., *La Pisanella ou la morte parfumée*; also *Parisina*, for which Massenet composed music. He was in France when the Great War broke out, and instantly made it his business to urge Italy to side with the Allies. *Fer la più grande Italia*, addresses concerning the war, appeared in 1915. *Contra uno contra tutti*, 1919, was an invective against the Wilson peace-policy. D'A. had surprised many by his performances on active service, the extreme sensuality of his literary work having led people to believe him a weakling. He had been in the artillery, and had lost an eye when practising aviation; but his most remarkable exploit came after the Armistice. The tn. of Fiume on the Croatian coast had been industriously Italianised by Hungary in order to checkmate the Slav pop. The Treaty of London (1915) had provided for its annexation to Italy; but, on the emergence of a Yugo-Slav state, the gov. of Italy in 1918 agreed with it upon a modification of the Treaty. Immediately, however, the new imperialism of Italy rose in protest. Contrary to engagement, on April 17 1918, Italian troops occupied the tn., which came to be governed by a self-appointed Italian council. It was visited by the journalist Mussolini in May; and during the summer there was fatal rioting, to inquire into which an international Commission arrived in July. On its findings becoming known in Aug., the Italian pop. rose in revolt; and on Sept. 12, 1919, D'A. entered the place at the head of 1000 men. On the plea of security, the other Allied garrisons were persuaded by the Italian garrison's commander to embark—thus enabling D'A. to become Dictator. He proclaimed Italian

annexation, and held out against all protests and threats until near the end of Dec. 1920; when, refusing to negotiate with the Italian gov., he surrendered his powers to the Fiume town council. He then departed from Fiume, which had begun a short-lived career of independence, Jan. 18, 1921, and retired to Gardone. He published, in 1921, *Notturmo*, dealing with the blindness he suffered after the aeroplane accident. In 1924 he was made Prince, and there appeared the first volume of *Le faville del Maglio*. In the spring of 1925 he was visited by Mussolini, who had become dictator of Italy. In 1927 the Italian gov. undertook publication of his works. See Sharp, *Fortnightly Review*, Sept. 1900; *Quarterly Review*, July 1900, 1902; Blennerhasset, *G. D'Annunzio*, 1901; J. N. Macdonald, *A Political Escapade; the Story of Fiume and D'Annunzio*, 1921.

Dansville, vil. of Livingston co., New York, U.S.A., 48 m. S. of Rochester on the Canaseraga Creek. It is the seat of Jackson Health Resort, a large sanatorium. It has printing and paper works. Dansville was named in honour of Daniel P. Faulkner; it was settled in 1800 and incorporated in 1845. It has large nurseries and vineyards. Pop. 4928.

Dante Alighieri (1265-1321), the great Italian poet, b. at Florence, probably in the latter part of May 1265, some nine months before the battle of Benevento. His father, Messer Alighiero di Bellincione di Alighiero, came of an ancient and honourable family of that section of the city named from the Porta San Piero. In *Inferno*, x. 46-50, D. tells us that his family were strenuous adherents of the Gueff cause, and since the Gueffs were almost all in exile until 1266, it is rather difficult to account for his having been born at Florence. Probably, however, his father, who seems to have been a notary, was of too little importance to be molested. Some few references to his relations are found in the *Divina Commedia*, and these may be briefly mentioned. In the heaven of Mars, among the warriors of the cross, D. meets his great-great-grandfather, Cacciaguida, whom other sources tell us to have been born about 1090, to have married Aldighiera degli Aldighieri, to have been knighted by Conrad III., and to have died in battle against the infidel. His son, the first to bear the name of Aldighiero or Alighiero, is said by Cacciaguida to be still in the purgatorial terrace of the proud (*Paradiso*, xv. 91-96). The only other member of the family mentioned is Geri del Bello, a grandson of

the elder Alighiero and co. sin of D.'s father, a sower of discord and a murderer (*Inferno*, xxix. 13-36), whose violent and well-deserved death had not yet been avenged. D.'s mother, Donna Bella, d. soon after his birth, so a certain loneliness marked his life from the beginning. His father married again, Lapa di Chiarissimo Cialuffi, the daughter of a prominent Gueff citizen, and by this second marriage he had a son Francesco, and two daughters, one of unknown name, the other Tana. He himself d. while D. was still in childhood. There is a possible reference to one of D.'s step-sisters in the sonnet, 'A very pitiful lady, very



DANTE ALIGHIERI

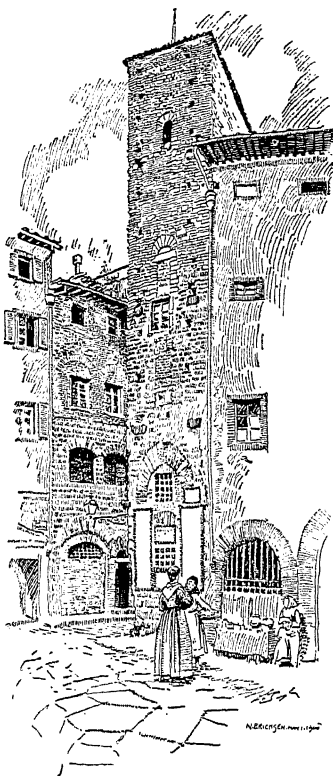
young,' in the *Vita Nuova*, p. 285 (Everyman's Library, No. 627). The most salient feature of the poet's youth and early manhood is certainly the story of his love of the mystic Beatrice. The whole story is told in the *Vita Nuova* in an allegorical and poetical manner, and to this work reference must be made. Beatrice has generally been identified with Beatrice, the daughter of Folco Portinari, a wealthy Florentine who d. in 1289. This Beatrice Portinari married Simone dei Bardi, a rich and noble banker. There are still some, however, who hold that Beatrice was no real woman, but a mystically exalted ideal of womanhood. In the *Vita Nuova*, D. tells us that already at the age of eighteen he had learnt 'the art of saying words in rhyme,' but the first sonnet that has come down to us is in connection with his love ('To every heart which the sweet pain doth move,' p. 259). He was immediately

recognised (1283) as a new poet, and received many answers to this sonnet, including one from the most famous Italian lyricist of the day, Guido Cavalcanti, henceforth to be the first of his friends (Everyman's Library, No. 627, p. 320, etc.). Boccaccio tells us that from 1283-89, D. was engaged in study, but there is nothing to mark the outward course of his life. The lyrics of the *Vita Nuova* bear witness to his growing maturity in art, while the prose narrative shows his acquaintance with the Latin writers. Boccaccio and Benvenuto da Imola also speak of a visit of D. to the universities of Bologna and Padua, which can hardly have been so early. He was more certainly engaged in the military campaigns of 1288 and 1289, for Leonardo Bruni tells us that he took a prominent part in the battle of Campaldino (June 11). This was the crowning triumph of Florentine arms, and the city was given up to great rejoicing. But on June 9 or 19 Beatrice *d.*, and D. lifts up his voice with the prophet in direst lamentation (*Vita Nuova*, p. 294). It is not easy to get a definite idea of D.'s life during the ten years which followed this event. He seems to have taken refuge in philosophic studies. The poignant reproaches which Beatrice addresses to him when he meets her on Lethe's banks seem to tell us of a serious falling away at this period. Some moral aberration and sensual passion must have called him for a while from the light of reason and the beauty of righteousness. *Tanto più caddè*, 'so low he fell' (*Purgatorio*, xxx. 136). He became friendly with Corso di Simone Conati, a turbulent and ambitious citizen, and with his brother Forese, a sensual man of pleasure. In several sonnets Guido Cavalcanti rebukes his friend for his altered mode of life, while several of D.'s own sonnets seem to show that several women crossed his life. Some time before 1297, D. married Gemma di Manetto Donati, a distant kinswoman of Corso and Forese, and the marriage does not seem to have been entirely happy. Gemma bore him four children, Jacopo, Pietro, Antonia, and Beatrice, but she did not share his exile, and was still living in 1332. Upon the abdication of Celestine V. in 1294, Boniface VIII. was made pope, an event ominous for Florence. In 1295, the first year of Boniface's pontificate, D. entered the troublous seas of political life. On Jan. 23, 1296, the pope inaugurated his aggressive policy towards the Florentine republic by a bull denouncing Giano della Bella, a great leader of the popular party, overthrown in 1295, and extolling the prudence of

the Florentines in expelling him. Now, although D.'s influence on the policy of the republic has been exaggerated by many, there can be no doubt that from the outset he took a decided attitude in direct opposition to all lawlessness, such as the riot which had overthrown Giano della Bella, and that he opposed an external interference in Florentine matters, whether from Rome, Naples or France. In 1300, a new division devastated Florence, originating in the feud between the two distinguished families of the Donati and the Cherchi. The partisans of the former house, consisting mostly of aristocrat and admired by the populace, are known as the Black Guelphs or Neri while the Cherchi, all-powerful among the burghers, headed the White Guelphs or Bianchi. On May 1, 1300, the two parties came to blows, and the whole city was divided. From June 15 to Aug. 15, D. was one of the six elected Priors, and from this period he dates all his woes. The leaders of both parties were at first banished, but the Bianchi, who submitted quietly, were soon recalled. The exiled Corso Donati sought the pope, whose aggressions had still continued, and that pontiff summoned Charles of Valois to his support. On Nov. 1, after giving solemn pledges to the Signoria, Charles entered Florence with 1200 horsemen, receiving no opposition. His first act was to recall Corso Donati and his allies, and the Bianchi made no attempt to hold their own. Plunder, massacre, and proscription was the order of the day. In Jan. 1302, D. and four other prominent men were accused of a variety of crimes, all of which the poet denies, and were exiled, their property being confiscated. All his early biographers support his denial. The terms of this decree of exile seem to imply that D. had fled from the city some time before its publication. He himself in the *Convivio* thus sums up the earlier portion of his exile: 'Since it was the pleasure of the citizens of the most beautiful and most famous daughter of Rome, Florence, to cast me forth from her most sweet bosom (in which I was born and nourished up to the summit of my life, and in which, with her goodwill, I desire with all my heart to rest my weary soul and to end the time given me), I have gone through almost all the parts to which this language extends, a pilgrim, almost a beggar, showing against my will the wound of fortune, which is wont unjustly to be oftentimes reputed to the wounded.' We do not know exactly where he went. It may have been either Bologna, Siena, or Verona. In 1303 he was certainly at

the latter town, where he found his first refuge at the house of Bartolomeo della Scala. Meanwhile, after several attempts to regain the supremacy, often in alliance with the Ghibellines, the Bianchi party were utterly defeated at Lastra (July 1304). About this time, D., who had taken no active steps in the attack on Florence, went to the Studio at Bologna, and between 1307 and 1309 went on to Paris, where he achieved much repute in the schools. Here he probably remained until 1310, when tremendous events put an end to his studies and imperatively summoned him back to Italy. In 1309 after the death of Albert of Austria, who had totally neglected Italy, Henry of Luxemburg was elected emperor with the approval of the pope. He immediately asserted his position as true king of the Romans and successor of Cæsar, and moved south to join all Italy together under a united church and empire. D., before the end of March 1311, had paid his homage to the new emperor, and had already written the first of a series of letters to the Italians and Florentines in which he calls on them to submit to the absolute authority of Henry. But Florence was the most perverse of the great cities. She supported all who were opposing the emperor, treated his messengers with contumely and formed a Guelf alliance against him with King Robert of Naples as her chief ally. D. urged the emperor against Florence ('the sick sheep that infects all the flock of the Lord with her contagion'), and the probable result of this and other letters was that a new condemnation was pronounced against him in Sept. 1311, making his exile perpetual. For a while Henry besieged Florence, but he had to retreat before the end of 1311, and two years later he died when about to renew the attack. And all hope being gone, the poet remained silent. From the spring of 1311 till the end of his days at Ravenna, which may be termed the last period of his exile, D.'s movements are hardly known at all, except by more or less certain conjecture. He had now given up all hope of returning to Florence, and wandered about in great poverty, under the protection of various lords, in different parts of Lombardy, Tuscany, and Romagna. There is a tradition, founded on *Paradiso*, xxi. 106-120, that he retired to the Convent of Santa Croce di Fonte Avellana in the Apennines, engaged on the great *Commedia*. He seems at one time to have visited Lucca, and in 1316 an amnesty was offered to him with many other exiles, but on conditions too degrading for him to accept. Towards the

end of 1316, he went to Verona to renew his friendship with Can Grande, son of Bartolomeo della Scala, and in 1317 he finally settled at Ravenna. Here ensued a quiet period, for he was treated with honour and surrounded by congenial companions. Then in



DANTE'S BIRTHPLACE

1321 he was sent on an embassy to Venice to settle a quarrel which had arisen between the two cities. He returned sick with fever, and passed away on Sept. 14, the Feast of the Exaltation of the Holy Cross, 1321.

Dante's works. Before dealing in detail with the more important of the works, it will be as well to give a general account of his entire production. His works fall into three distinct periods. The first is the

period of the 'new life,' the epoch of the worship of the real Beatrice, in which the youthful poet beheld many things by his intellect, 'as it were dreaming.' This period includes the *Vita Nuova* with its lyrics, and closes with the promise to write yet more concerning her than has before been written of any woman. The second period is that of passion, political turmoil, and philosophical research, and marks a great advance in almost every direction. It includes the greater part of the *Canzoniere* collection, the two unfinished prose treatises—the *Convivio* and the *De Vulgari Eloquentia*, and the political letters connected with Henry VII. The Latin treatise, *De Monarchia*, may also belong here. Connecting the second and third periods comes the letter to the Italian cardinals on the death of Clement V. (1314). The last period is that of the *Divina Commedia*, the return to Beatrice, but now the allegorical Beatrice, as well as the two eclogues and the letters to the Florentine friend and to Can Grande, if these are authentic. Among apocryphal works may be mentioned the *Questio de Aqua et Terra*, in Latin prose, and the *Seven Penitential Psalms* and the *Profession of Faith* in Italian verse. Several of his smaller poems, to which he incidentally makes reference in other works, are now lost. D. himself acknowledges Guido Guinicelli as his master in poetic art and the founder of the new school of Italian poetry (*Purgatorio*, xxvi. 97), whose doctrine of love expounded in the 'Canzone of the Gentle Heart' is the most fitting introduction to the *Vita Nuova* and the *Canzoniere*. It may be found in Rossetti's translation in Everyman, No. 726. The *Vita Nuova* may be considered as a preparation for the *Commedia*, inasmuch as it tells us how the divine singer became a poet, and how she crossed his path who was to be his spiritual pilot over that mighty ocean. It is the most spiritual and ethereal romance of love that exists, but its purity is such that it comes, not from innocent simplicity of soul, but from self-repression. It tells the whole story of D.'s love for Beatrice from his first sight of her in their ninth year to a vision which is the anticipation of her final apotheosis. Under the heading of the *Canzoniere* are included all D.'s lyrical poems, together with a few that are more doubtfully attributed to him. They fall into four groups: The first of the *Vita Nuova* period; the second in which allegory is beginning to supplant the real Beatrice; the third expressing passionate love of other real women; the fourth, canzoni on Recti-

tude, Nobility, and Gallantry. Just as, after the death of Beatrice, D. collected all his early lyrics in a prose narrative, so in the *Convivio*, or 'Banquet,' he attempts to collect fourteen of his later canzoni, with a prose commentary to the glory of his mystical lady, Philosophy. The work, however, was left incomplete. The first of the Latin works is the *De Monarchia*, an attempt to solve the burning mediæval question of the relations of church and state, of spiritual and temporal authority. It is divided into three books, and has been described as 'the most purely ideal of political works ever written.' The *De Vulgari Eloquentia* is incomplete, only two out of the four books having been written, the second remaining unfinished. It deals first with the search for the highest form of the vernacular, and secondly, with the application of the vulgar tongue to poetry. Ten Latin letters are also extant and ascribed to the divine poet, but only that to Henry VII., Emperor of Germany, is universally accepted as genuine. One of them, that to Can Grande, is a miniature philosophic treatise in epistolary form, at the same time being a dedication of the *Paradiso* to the young lord of Verona. It is probably authentic, and its date would be about 1319. The eclogues, two delightful pastoral poems in Latin hexameters, belong to the closing period of D.'s life, when he was engaged on the *Paradiso*. In spite of the testimony of Boccaccio and Leonardo Bruni, their authenticity has been questioned. Though the *Divina Commedia* must be regarded as the work of the closing years of his life, it is poetically placed in the spring of 1300, before D.'s election to the priorate, and the poet puts himself in the position of a man relating a vision which he had seen twenty years before. Hence all events subsequent to April 1300, such as the faction fight of May in that year, are spoken of prophetically as future events. Approximately, the completion of the *Inferno* and *Purgatorio* may be placed between 1314 and 1319, that of the *Paradiso* between 1316 and the day of his death. The poem is a vision of the world beyond the grave, and also an allegory, based upon that vision, of the life and destiny of man, his need of light and guidance, his duties to the temporal and spiritual powers, to the empire and to the church. In the epistle to Can Grande, the poet tells us that the allegorical meaning is 'Man as by freedom of will, meriting and demeriting, he is subject to justice rewarding or punishing.' The *Inferno* represents

the state of ignorance and vice; the *Purgatorio* is the life of converted sinners, obeying Cæsar and reconciled to Cæsar, doing penance and striving Godwards, after the state of innocence has been regained in the Earthly Paradise; the *Paradiso* represents the ideal life of action and contemplation, closing in an earthly foretaste of the Beatific Vision. This may be applied to the moral or spiritual Hell, Purgatory, Paradise of men still united to their bodies in this life, as well as to the essential Hell, Purgatory, Paradise of disembodied spirits. The end of the poem, as the epistle to Can Grande shows, is to remove those living in this life from the state of misery and lead them to the state of felicity. In the individual, this object is attained in the manner described above, in the universality it can only be effected by the restoration of the empire and the purification of the church. To aid in the attainment of this end, D. has two guides: Virgil, representing Reason or Human Wisdom, and Beatrice, representing Revelation or Divine Wisdom. At times, Virgil seems invested with the power of the empire, and Beatrice with the authority of the church. The personal meaning, too, must not be forgotten. The allegory is partly dropped when Virgil leaves Dante in the Earthly Paradise to return to his own sad place in Limbo, and entirely when Beatrice is last seen enthroned in glory beneath Madonna's throne. The metrical structure is complicated. Each of the three *Canticas* is divided into cantos, the *Inferno* into thirty-four, the *Purgatorio* into thirty-three, the *Paradiso* into thirty-three, thus making up a hundred cantos, the square of the perfect number. Each canto is composed of from thirty-eight to fifty-three *terzine* or *terzette*, written in *terza rima*, thus ABA, BCB, CDC, . . . , with an extreme line *ortornello* rhyming with the second line of the last *terzina* to close the canto thus . . . XYZ, YZY. The *Divine Comedy* is issued in the Temple Classics (Dent) in three volumes with Italian and Eng. on oppositesides. Rossetti's translation of the *Vita Nuova*, with the sonnets of D. and his contemporaries, is to be found in No. 627 of Everyman's Library (Dent). For further details on various points see biographies by Bartoli, Boccaccio (Florence, 1888), and Bruni, in Italian; by Butler, Moore, and Witte in Eng. The best edition of the works is the Oxford *Dante* (1894 and 1897). See Gardner, *Dante* (Temple Primers), and *Dante and the Mystics*, 1912; Wicksteed, *Dante and Aquinas*, 1913.

Dante da Majano, an Italian lyrical poet of the early fourteenth century, b. at the end of the thirteenth, contemporary of Dante Alighieri. He was a slavish imitator of the troubadours, two poems being in Provençal, but had a considerable reputation. His reply to Dante's first sonnet (*A ciascun' alma presa*) was very coarse. A collection of his works, entitled *Sonetti e Canzoni di diversi antichi autori toscani*, appeared 1727. A later edition is that of Bertacchi (1896). Novati (1883) refuted Borgognoni's arguments (1882) against the existence of such a poet.

Danton, George Jacques (1759-94), 'the Titan of the Fr. Revolution,' b. at Arcis-sur-Aube, of well-to-do parents. He received a good education, and in 1780 went to Paris, where he practised as an advocate until the outbreak of the Revolution. He took no prominent part in the earlier stages of the Revolution. He first came to notice as founder and president of the Cordeliers' Club, which,



GEORGE JACQUES DANTON

though local in origin, soon began to attract the more extreme revolutionists. D. does not appear to have taken any prominent part in the great events of 1789, the fall of the Bastille and the forcible removal of the court from Versailles to the Tuileries. In the following year one finds him urging action to prevent the arrest of Marat, and in the autumn he appears to have been made commander of the battalion of the National Guard in his district. In 1791 the death of Mirabeau (who fully appreciated D.'s powers) hastened the downfall of the monarchy. From a minor administrative office, D. was, in 1792, made Minister of Justice. This appointment, following the march on the

Tuileries, has been adduced as a proof that he was concerned in that affair, but that he was so is not at all clear. Henceforward until his death his personality looms large in the story of the Revolution. He himself had no part in the infamous September massacres, but he sought to justify them as inevitable excesses. It was his eloquence that inspired his countrymen to drive back the Prussians when they sought to restore the monarchy. 'We must dare,' he said, in words that became proverbial, 'and again dare, and for ever dare.' He voted for the death of the king in January 1793. He was one of the original members of the Committee of Public Safety, and was frequently sent on special missions. In the convention he became leader of the Mountain, a party so named from the high benches on which its members sat. Under his leadership, they overcame the more moderate Girondins, or country party, but D. then found that he could not control the party he had led to victory. His enemies won over Robespierre to support their intrigues, and D., either careless or disdainful of his enemies, was arrested without difficulty. On April 2, 1794, he was brought before the Revolutionary Tribunal which he had created a year before, and when his eloquence made a great impression on the people he was sentenced to death without further hearing. He was executed on April 5, 1794, with fourteen others, including Camille Desmoulins, his comrade from the early days of the Cordeliers' Club. *See* Life by H. Belloc, 1899.

Dantzig, or Dantsic, see DANZIG.

Danube, the second largest river of Europe, its length of 1740 m. being only exceeded by that of the Volga. It has its origin in the Brigach and the Brege, two mountain streams that rise in Swabia in the Black Forest. They unite at Donaueschingen, and the D. flows thence first S.E. to Gutmadingen, and then N.E. as far as Regensburg. Here it turns S.E., having reached its most N. point at Ratisbon, and continues to flow in that direction as far as Waitzen, 20 m. N. of Budapest. In this part of its course the river passes through wild and romantic scenery, and the crystalline rocks of the Bohemian forest are found along the banks as far as Aschach. It leaves Austria by means of what is known as the Carpathian Gate, a narrow opening between the mountains. Before reaching Waitzen the stream divides in one or two places, and the islands thus formed include the Great Schütt and St. Andreas Is. Farther down its course are found Csepel,

Margitta, and other islands. Near Waitzen the river turns sharply to the S., and continues to flow due S. over the Hungarian plain, where it is continually making fresh channels, for about 230 m. It then turns S.E. once more, and forms the boundary between Hungary and Serbia. A series of rapids occurs on this stretch of the river, the most important being at the 'Iron Gates,' below Orsova. Proceeding in an E. direction, the D. drains the country lying between the Transylvanian Alps and the Balkans. It gradually turns from S.E. to N.E., from Silistria it runs N. as far as Galatz, and then turns E. at a right angle, and goes into the Black Sea. The delta of the D. begins a few miles after Galatz and a few miles W. of Tuldja. The extreme mouths are 60 m. apart, and the vast expanse lying between these extreme branches, comprising about 1000 sq. m., is little more than a wilderness of rushes. The principal arms of the river are the Sulina, Kilia, and St. George. The area drained by the river in the whole of its course is estimated at over 315,000 sq. m. The D. is distinctive among important European rivers in that it flows from W. to E. It has, roughly, about 400 tributaries, about one in four of which are navigable. In its upper course it receives the Iller and the Lech from the right. Passing through Austria and Hungary, it receives the March, Waag, Gran, and Theiss from the left, and the Enns, Raab, Drave, Save, and Morava from the right. Lower down it is joined by the Scereth and Pruth. The principal towns on the D. are Ratisbon, Vienna, Pressburg, Budapest, Belgrade, and Galatz. The width of the river varies considerably, and at some points the opposite shore is hardly discernible. It is first navigable at Ulm, and, thanks to various improvements, is now navigable continuously from that point to its mouth. Engineering work to this end was undertaken at Vienna, Budapest, and the Iron Gates. The International Danube Navigation Commission, appointed in 1856, controls the lower portion of the river, and has done much to improve navigation at the delta. The Commission has made great progress in the deepening of the river-bed, so that at Sulina, for example, the depth has been increased from 9 to 24 ft. It has also linked up various parts of the river by canals, so that the route for navigation has been shortened, and the mileage reduced from 45½ to 33½ nautical miles. The Danube is connected with the Rhine and the Elbe by canal, and the famous Ludwigskanal has united the D. with

the Main since 1844. The tonnage clearing from the Danube ports in 1928 was 825,524 tons. Rumania has established a naval base at Sulina, and the force on the Danube consists of seven monitors, seven vedettes, and some small vessels; the naval school is situated at Galatz. Bulgaria is prohibited from maintaining any warships on the Danube, but has been permitted to retain for the protection of its trade and fishery a small number of unarmed torpedo and motor-boats. Sea-going vessels of 600 tons can now go nearly as far as the Iron Gates, while vessels of 2500 tons can go above Galatz.

Danube International Navigation Commission, a commission appointed by the treaty of Paris, 1856, after the Crimean War, to make the Danube navigable and place it under the protection of international law. It was formed by representatives of the seven signatory Powers (Austria, France, Great Britain, Sardinia, Russia, Prussia, Turkey), a representative of Rumania being added, 1878. The commission has been kept in power by various later agreements, 1866, 1871, 1878, and 1883, and since 1904 by tacit prolongation for successive terms of three years until the war conditions of 1914-19 put an end to the validity of agreements between European nations. A convention instituting the definitive status of the Danube was signed in Paris on July 23, 1921 by Austria, Belgium, Bulgaria, Czechoslovakia, France, Germany, Great Britain, Greece, Hungary, Italy, Jugo-Slavia and Rumania, which came into force on Oct. 1, 1922; and on May 27, 1923, a convention was signed in Paris by Austria, Czechoslovakia, Jugo-Slavia, Hungary and Rumania approving arrangements regarding permanent Technical Commission for the Danube. The convention of 1921 provided that the navigation of the Danube should be equally free to all nations from the Black Sea to Ulm and instituted schemes for the improvement of the waterway; it decided that all passenger and goods traffic should receive no preferential treatment in any state. Ships were to be taxed according to their tonnage, for the purpose of providing revenue. The headquarters, which were at Bratislava, should be maintained for five years, and afterwards transferred to other towns on the Danube for periods of five years when these were deemed especially suitable.

Danubian Principalities (Provinces), the name formerly given to the principalities of Moldavia and Wallachia. In political discussions it was also

sometimes used for Serbia and Bulgaria.

Danvers, a tn. of Massachusetts, U.S.A., in Essex co., 20 m. from Boston, of which it is a residential suburb. There are extensive boot and shoe factories, brickfields, etc., also manufactures of electric lamps and fixtures. Among the institutions are a state lunatic asylum, a Catholic college library, and museum. Pop. 12,957.

Danville: (1) Capital of Vermilion co., Illinois, U.S.A., 46 m. from Terre Haute, 120 m. from Chicago, on Vermilion R., and various railways. It is a farming and coal-mining centre and important manufacturing town, and has flour, lumber, and woollen industries, glass and iron works. A branch of the National Soldiers' Home is here. Pop. 36,765. (2) Capital of Boyle co., Kentucky, U.S.A., on the Queen and Crescent Route, 68 m. from Louisville. It is an important market for horses, cattle, hogs and sheep, and contains Centre College (Presbyterian), founded in 1819, State Asylum for deaf-mutes, and Danville Theological Seminary. Pop. about 6729. (3) Capital of Montour co., Pennsylvania, U.S.A., on N. branch of Susquehanna R., and various railways, 56 m. from Harrisburg. The first establishment for manufacturing railroad-iron was here, and it has a steel plant and blast furnaces. Anthracite coal, iron ore, and limestone are found near. There is a State Insane Asylum. Pop. 7185. (4) City of Virginia, U.S.A., on Dan R., 115 m. from Richmond, on various railways. It has numerous colleges and institutions. It is in the yellow-tobacco region, and has much tobacco trade and cotton-mills. Pop. 22,427.

D'Anville, Jean Baptiste Bourguignon (1697-1782), a famous Fr. geographer and map-maker of Paris. He may almost be said to have created the science of geography, and in 1719 was appointed 'geographer to the king.' He occupied the chair of geography in the Academy of Sciences, 1773. D'Anville published 211 maps, the chief collections being *Atlas General*, 1737-80; *Atlas Antiquus Major*; *Orbis Romanus*; *Orbis Veteribus notus*; *Géographie Ancienne abrégée* (3 vols.), 1769; *États formés en Europe*, 1771. See Condorcet, *Eloge de D'Anville*, 1782; *Nouvelle Biographie Générale*; *Ency. Brit. ii.*, cf. 'Delisle.'

Danzig, a Free State under the protection of the League of Nations, includes the city of D., the municipality of Zoppot and several smaller communities. The city of D. stands on the l. b. of the Vistula, about 3 m. from the mouth on the Baltic.

From 1308 to 1454 it belonged to the Teutonic knights. It joined the Hanseatic League in the fourteenth century, and in the fifteenth century its prosperity led to its being called the 'Venice of the North.' Owing to its strategic importance D. was subjected to several sieges, and fell in turn into the hands of Denmark, Sweden, Poland and Brandenburg. In 1834 D. was captured by the Prussians and, rapidly prospering, became the capital of W. Prussia. On Nov. 15, 1920, by the Treaty of Versailles D. received the status of a free city, this being a solution of the Polish demands for a commercial port on the Baltic and to the fact that 96 per cent. of the people are Ger. The League of Nations is represented by a resident High Commissioner, who has power to arbitrate between Poland and the Free State of D. The affairs of the harbour are governed by a committee, consisting of five Polish and five Ger. citizens of D., with a chairman of Swiss nationality. Poland retains the right of free access to the sea for commercial purposes. The foreign and diplomatic relations of D. are also in the hands of Poland. D. possesses a currency peculiar to itself. The gulden, valued about 10d., is divided into 100 pfennigs. Ger. is the official language. The City of D. is a busy commercial port, having extensive docks and ship-building yards. There is considerable traffic, both passenger and cargo, between D. and the Baltic ports, Hull, London and the U.S.A. Since the Treaty of Versailles the trade on the Lower Vistula has declined, but there is still a large export trade from D. by means of the river Mottlau, a tributary of the Vistula. Exports include timber, grain from the fertile Vistula valley, cement, iron, and steel. The industries of D. include the production of sugar, tobacco, flour, hardware, and jewellery. The public buildings include the church of St. Mary (1343-1502), one of the finest churches on that side of the Baltic; a Gothic town hall (fourteenth and sixteenth centuries); and a Franciscan monastery. The pop. of D. City is 231,000; the total pop. of D. (1924) is 386,000. Area 791 sq. m.

Daphne (Δάφνη), in classic mythology, a nymph beloved of Apollo, daughter of one of the Gk. river-gods. She fled from Apollo's pursuit, and was changed into a laurel or bay-tree, which was ever after sacred to Phoebus Apollo. See Ovid, *Metam.* i. 425-567. For the legend of her pursuit by another lover, Leucippus, see Pausanias, viii. 20; Parthenius, *Erotica*, 15.

Daphne, the famous grove and sanctuary of Apollo, about 5 m. S.W. of Antioch, Syria, on R. Orontes. It was founded by Seleucus Nicator (c. 321 B.C.). The temple contained a statue of Apollo by Bryaxis, and was in the midst of a grove of cypress and bay trees, with beautiful gardens, baths, and porticoes surrounding it. The temple was burnt (c. 363 A.D.). The probable site is now called Bêt-el-Mâ.

Daphne, a genus of the order Thymelacææ. The commonest of the species is the mezereon of our gardens, which is found wild in mountainous woods of Middle and S. Europe. The spurge laurel is another British species found wild in woods and hedges; the Garou bush yields a yellow dye; *D. lagetta*, the lace-bark tree of Jamaica, contains strong bast fibres and the inner bark is sometimes made into a kind of lace.

Daphnin (C₁₇H₁₆O₆), in chemistry a bitter glucoside obtained from the bark of *Daphne mezereum* and *Daphne alpina*, found by Vauquelin (see Vauquelin, *J. Ch.*, 84, 173). Also a dark green resin, regarded as the essential principle of the mezereon. It can be easily decomposed into sugar and a substance called daphnetin, whose composition is represented by the molecular formula C₆H₆O₄. It may be prepared artificially. See Children, *Chem. Anal.*, 1819; Turner, *Elem. Chem.*, 1847; Watts, *Dict. of Chem.*, 1905.

Daphnis (Δάφνις), in mythology, a shepherd and hero of Sicily, said to be a son of Mercury and a Sicilian nymph. He was the reputed inventor of pastoral poetry, and figures largely in the bucolic poetry of the ancients. (from the early third century B.C.), as also in the more modern imitations, where he becomes merely a conventional figure. He was under Diana's protection, and taught music by Pan. According to legend, D. was beloved by a Naiad, who punished him with blindness for his infidelity to her. See Theocritus, *Idylls*, i.; Virgil, *Eclogues*, v.; Prescott, *A Study of the Daphnis Myth* (in Harvard Studies in Classical Philology), x., 1899.

Dapitan, a tn. situated on the N. coast of Mindanao, an is. of the Philippine Archipelago. It is a trading port, and a trade in rice, cocoa, sugar, fruit, and vegetables is carried on. A little gold is also found. Pop. 5000.

Dapsang, a mountain of Central Asia, which forms the culminating point of the Karakorum range, and rises to a height of over 25,000 ft.

Darabgherd, Darâb, or Darabjird, a city of Persia in the prov. of Farsistan. It is situated at the base of high

hills on a small stream, and is surrounded by orange and lemon groves, date palms, etc. Relics of great antiquity have been discovered in the vicinity. Pop. about 15,000.

Daraga (official name *Cagsand*), a tn. situated on the is. of Luzon, belonging to the Philippine Archipelago. The chief industry is the distilling of flower essences and alcohol. Pop. 22,000.

Daraiyeh, or **Derayeh**, a ruined tn. of Central Arabia. It was at one time the capital of the Wahabis, in Nejd, being composed of five separately fortified quarters. It was destroyed in 1818, after withstanding a siege which lasted about seven months.

Darbhanga, the chief tn. of the dist. of that name, in Bengal, India. It is situated on the l. b. of the Little Bagmati R., 78 m. N.E. of Patna, and is the residence of the Maharajah of D., who is one of the largest landowners in Bengal. The palace is a very fine building and the tn. contains a number of very large tanks. It possesses a large marketplace and many bazaars. There is a trade in salt, timber, grains, and oil seeds. Pop. 53,700.

D'Arblay, *Madame*, see **BURNEY**, **FRANCES**.

Darboy, **Georges** (1813-71), a Fr. prelate. Archbishop of Paris, 1863. He upheld the theory of episcopal independence, but, though vehemently opposing the doctrine of papal infallibility, submitted on the adoption of this dogma. At the siege of Paris, while ministering to the wounded, he was seized by the Communists, and shot in La Roquette Prison, 1871. He translated *Dionysius* (St. Denys) the Areopagite, and wrote *Saint Thomas Becket, sa Vie et ses Lettres*, 1860; *Les Femmes de la Bible*, 1876 (8th ed.); *Les Saintes Femmes*, 1877. See *Foulon, Vie*, 1889.

Dardanelles, or **Strait of Gallipoli**, the anct. Hellespont, a narrow channel connecting the Sea of Marmora with the Aegean Sea, and thus separating Europe from Asia. It is about 40 m. in length, and varies in width from 1 to 5 m. One of the narrowest parts is between Abydos and Sestos, where, according to the classic story, Leander swam across nightly to visit Hero. This exploit was repeated by Lord Byron in 1810. It was also about this spot that Xerxes crossed into Europe with his army (by two bridges of boats) in 480 B.C., and Alexander the Great crossed to Asia in 334 B.C. Both sides of the strait are strongly fortified, as it is the key to Constantinople. By a treaty of 1841 it was agreed that none but a Turkish warship should pass through the D. without the consent

of Turkey. This understanding was re-affirmed in 1871 and 1878. In 1904, during the Russo-Japanese War, two Russian volunteer fleet cruisers passed through as merchant ships. Several castles are situated on the shores of the strait, including two bearing the name of the D. on the sites of Abydos and Sestos. The chief coast towns include Gallipoli, Lapsaki, Galata, Kilia Bahr, and the fortified seaport of Kale-i-Sultaniye. The D. take their name from the anct. Dardanus, a Gk. city on the Troad. They were closed to merchant shipping in April 1912 during the Turco-Italian War, but were reopened a month later in response to representations from Great Britain and other European Powers. The Gallipoli peninsula was the scene of fighting during the second half of the Balkan War, 1913.

Attack on the Dardanelles, 1915.—Shortly after the outbreak of the Great War, the Turkish gov., under Ger. pressure, closed the D. to commerce, as a reply to the Allied protest regarding the Ger. cruisers *Goeben* and *Breslau* (see **GOEBEN** and **BRESLAU**), which, having taken refuge in Constantinople harbour, were dominating that city with the connivance of the pro-Ger. party under Enver Pasha. Thus Russian grain exports were effectually sealed up in the Russian ports, and a few days later Turkey was openly ranged with the Central Empires against the Allies. The Allies, realising how great would be the moral and practical effect of taking Constantinople, prepared to force the D. The political and military importance of the Straits at this time was almost incalculable: the capture of Constantinople, which would have been the corollary to success, would not only have opened the way to the Russian grain cargoes, but would have thwarted Ger. control of the Bagdad Railway, enormously enhanced Allied prestige throughout the Mohammedan world, probably kept Bulgaria out of the war, and, further, by releasing the Russian armies in the Caucasus, have tended to shorten the war. It was, however, recognised that the operation of forcing the D. was hazardous, especially as Ger. experts had superintended the mounting of powerful 14-in. Krupp guns on the shores so as to command all approaches. From Feb. 19 to March 15, a squadron of obsolescent Fr. and British battle-ships, supported by the *Queen Elizabeth*, *Agamemnon*, and *Inflexible*, and commanded by Vice-Admiral De Robeck, intermittently bombarded the forts Sedd-el-Bahr and Kum Kale

at the entrance of the Straits. On March 18 an attempt was begun to reduce all the inner forts, commencing with Kilid Bahr, within a few weeks. The hope was that once the forts were reduced the minefields would be cleared and the way open for the fleet to proceed up to Constantinople, destroy the *Goeben* and *Breslau* and take the capital. This ambitious plan seems to have been open to many objections (consult *Dardanelles Report*), especially strategic, and it is not surprising in all the circumstances that it failed. The guns of the forts at the entrance were silenced, but the real defences were in the Narrows, less than a mile in width and commanded by the forts of Kilid Bahr on the W. side and those of Chanak on the E. or Asiatic side. The 15-in. guns of the *Queen Elizabeth* having carried out a bombardment from the Gulf of Saros against the Chanak forts, the Allied ships, comprising fifteen British and four Fr. vessels, moved toward the Narrows and concentrated their attack on Kilid Bahr, the impression of the commander being that the Chanak guns had been put out of action. The result was disastrous, for the Fr. ship *Bouvet* was shelled and sank with all on board, the *Irresistible* and *Ocean* were sunk (probably torpedoed) on March 18, and both the *Inflexible* and the *Gaulois* were severely damaged. The British loss in personnel was 2000. The rest of the fleet steamed out again on the same day and no further attempt was made to destroy the forts by a naval attack alone. Later, when the Fleet co-operated with the landing force, three more British battleships were lost, the *Goliath*, torpedoed off Gallipoli, May 12, and the *Triumph* and *Majestic*, both torpedoed on May 26. (For the land attack which was launched in the same year see under GALLIPOLI CAMPAIGN.)

Naval Operations subsequent to March 1918.—The Brit. submarine E. 15 was wrecked and the crew captured on April 17. Crews of the *Majestic* and *Triumph* went out and destroyed the hull of the submarine. On April 27 E 14 went through the straits and sank three Turkish men of war. On May 12 the Turks torpedoed the old Brit. warship *Goliath*. On May 26 and 27 Ger. submarines torpedoed and sank the *Triumph* and *Majestic*. On Aug. 9 a Brit. submarine sank the *Barbarossa* and later the Gers. torpedoed and sank the Brit. transport *Royal Edward*, one thousand British lives being lost.

Among the famous fourteen points set forth by President Woodrow

Wilson in Congress on Jan. 8, 1918 was that (No. 12) which insisted on the D. being permanently free to all ships. After the war, the internationalisation of the Straits became an accomplished fact under the Treaty of Lausanne, 1923. A special convention demilitarised zones on both sides of the Bosphorus and Sea of Marmora and prescribed rule for preserving the freedom of the Narrows in peace and war which are now applied by a mixed commission of the League of Nations.

Dardania, or **Dardanici**, was in anct. geography a kingdom in Mysia Asia Minor, of which the size and boundaries were uncertain. It is mentioned in the *Iliad*, and was, according to Gk. mythology, founded by Dardanus, who swam on an inflated skin from Samothrace to the Troad. The inhabitants of D. were the Dardani.

Dardanus (Δάρδανος), a son of Zeus and Electra, daughter of Atlas. He was the mythical ancestor of the Trojans, called after him Dardanids (see HOMER and VIRGIL). Homer reckons five generations between D and Priam.

Dardanus, **Dardanium**, or **Dardanium**, was in anct. geography a city situated on the Hellespont in Mysia, Asia Minor, about 10 m. S.W. of Abydos. It was built by Dardanus who was, in Gk. mythology, the founder of Troy.

Dardistan (country of the Dards; the name of a mountainous dist. on the N.W. of Kashmir, where the R. Indus bends S.; extended as a geographical name for numerous tribes between Kashmir and Afghanistan on the S. slopes of the Karakoram and Hindu-Kush Mts. It comprises the frontier districts of Chitral, Swat and Kafiristan, recently brought under British control. The Dards are an Indo-European people, once Buddhists, now mostly Shiite Moslems. They are also called Kanjurs. See Biddulph, *Tribes of the Hindoo Kooch*, 1880; Leitner, *Hunza and Nagar Handbook*, 1893.

Dar-el-Beida, or **Casa Blanca**, cape and seaport on the W. coast of Morocco, situated halfway between Mazagan and Rabat.

Dares (Δάρης), a priest of Hephaestus (Vulcan), mentioned in Homer's *Iliad*, v. 9, and praised for his wisdom. He was said to have been present at the siege of Troy, and an older story of Troy's destruction written on palm leaves, was attributed to him. There is an extant prose narrative (forty-four chapters) ascribed to 'Dares Phrygius,' written in very bad Latin, *De Excidio Troie Historia*, purporting to be a translat.

tion from the Gk. by Cornelius Nepos, but apparently belonging to the fifth century A.D. Guido delle Colonne based a romance on the Latin version in the thirteenth century. It was often printed with the works of Dictys Cretensis (by Dacier, 1680; by Meister, 1873).

Dar-es-Salaam (Arabic, House of Peace), seat of gov. of the Tanganyika Territory (British mandate), formerly cap. of Ger. E. Africa. Has about 25,000 inhabitants, with quays and floating dock, and a railway to the interior which made it the commercial centre of Ger. E. Africa, good hospitals and schools, museum, two churches, electric light, European and native quarters. The trade in 1927 amounted to a million and a quarter tons. It was bombarded by the British in 1914 and evacuated by the Gers. in 1916. The dist. of the same name has 182,700 inhabitants.

Darfield, a par. and tn. of W. Riding, Yorkshire, on the Dearne, 5 m. from Barnsley. Coal is worked in the neighbourhood. Pop. 5566.

Dar-Fur, a country of Central Africa, in the E. Sudan, formerly a centre of the slave-trade. It was an independent kingdom until 1874, when it was nominally annexed to Egypt. Subsequently, however, it suffered from the domination of the Mahdi, and his successor, the Khalifa, until the defeat of the latter in 1898. It is inhabited chiefly by Arabs and a negro tribe, the Fur; the capital is El Fasher. The country is an undulating plateau, with flat sandy desert in the N. It produces grain, tobacco, tamarinds, dates, white melons, ivory, some copper, and iron, and cattle, camels, and game are plentiful. Area 170,000 sq. m. Pop. variously estimated at 1,500,000 to 4,000,000.

Dargai, a hill-range near the Khola Pass, 50 m. from Peshawar, N.W. Frontier Province, India. During the Tirah Campaign the British, under Yeatman Biggs, stormed the fortified heights held by Afridis and Orakzais, 1897. The honours were carried off by the Gordon Highlanders, assisted by the 2nd Ghurkas and the 3rd Sikhs.

Darial, a famous gorge and chief pass in the Caucasus Mts., situated in the central part of the range. It has been fortified from very remote times, and the present Russian fortress is at the N. extremity, over 4000 ft. in altitude. A military road crossing it leads from Tiflis to Vladikavkaz.

Darien, Gulf of, forms part of the Caribbean Sea, situated in lat. 9° N. and long. 77° W. On the W. is the Isthmus of Darien, known as Panama. In the S. is the Bay of Choco, which receives the R. Atrato.

Darien, Isthmus of, otherwise Panama, the narrow neck of land joining Central and S. America.

Darien Scheme, a project started by a Scotsman, William Paterson, in 1695, to form a settlement on the Isthmus of Darien for controlling trade between the East and West. Paterson, the founder of the Bank of England, was a bold and enterprising man. His ostensible proposal was to establish an E. India trade in Scotland; this finally developed into the plan of forming an emporium on each side of the Isthmus of Panama to establish trade between the opposite continents, and to 'wrest the keys of the world from Spain.' William III. was opposed to his scheme, but national enthusiasm carried it through, though it was unable to avert the disastrous fate of the settlement. In 1698, 1200 Scottish colonists sailed from Leith to Panama (Puerto Escoces), to lay the foundations of 'New Caledonia.' They made Acta their head-quarters, with the name of New Edinburgh, and built a fort, New St. Andrews. The Spaniards proved hostile, and the colonists unfitted to endure the climate and hardships of war and disease. The survivors returned home in 1699, and though two more companies had already been sent out to America, a like fate drove them back in 1700. For the full story consult Bancroft, *History of Central America*, ii., 1883; Sir J. Dalrymple, *Memoirs of Great Britain and Ireland*; Warburton's novel *Darien*; Burton, *History of Scotland*, viii., and *Darien Papers*, 1849; Barbour, *W. Paterson and the Darien Company*, 1907; Story, *William Carstares*, 1874; Scott, *Tales of a Grandfather*.

Dario, Ruben (1867-1916), the most notable writer of Spanish poetry of his time. Though born in Nicaragua, he soon made himself the leader of Hispano-American poetry. Deserted by his parents, and then cared for by an uncle, he departed for Chili at the age of twenty. Steeped in the Fr. poetry of the Parnassian and Symbolist schools, he had not been long in Chili before he published his first book, which was an immediate success, *Azul* (*Azure*). In 1896 he was living in Buenos Aires, where he published *Profane Prose and other Poems*. It created a critical storm. Filled with the influence of Verlaine, he had abandoned the solemn Spanish eloquence and invented entirely new and strange rhythms until then unknown in Spanish. In 1900 he came to Paris, where he was to settle down until 1914, when he departed on account of the war to die at Leon after a

short time in a hospital in New York. Like so many 'Bohemians,' he gave himself up to morphine and alcohol and so ruined his health. But at the same time some of his best work appeared during his life in Paris: *Songs of Life and Hope*, 1905; *The Wandering Song*, 1907; *Poems of Autumn*, 1910. Since his death, he has become a modern Spanish classic. None of the younger generation of Spanish-writing poets but has felt his great influence and realised that he gave Spanish poetry a true rebirth.

Darius I. (521-485 B.C.), the first and greatest of the Persian kings bearing that name, b. in 548 B.C. He obtained the throne after the death of Cambyses, but for some time had to contend with rebellion, especially from Babylon under Nidinta-Bel. After obtaining peace within the empire, he proved himself in many ways a wise and enlightened ruler; he divided the empire into twenty satrapies for the purposes of government, systematised the taxation, and improved the roads. His conquests extended from India to Thrace and Scythia. In his expedition of 515 B.C., he transported 700,000 men across the Bosphorus on a bridge of boats. He conquered Thrace and his general, Megabyzus, subdued Macedonia, after which he pursued the Scythians as far as the Volga, but returned with a depleted army. In 499 B.C. the Ionians revolted and were helped by the Athenians. After subduing the revolt, D. sent two expeditions against the Athenians. The first ended in the wreck of his fleet in 492 B.C. The second ended in the defeat of the Persian army at the famous battle of Marathon, 490 B.C. He d. while preparing for a third expedition.

Darius II. of Persia (424-405 B.C.), an illegitimate son of Artaxerxes I., who succeeded Xerxes II. after murdering his own brother, Sogdianus. His reign was only notable for insurrection and misrule. He helped the Spartans in the Peloponnesian War.

Darius III. (336-331 B.C.), the last of the Persian kings of the Achæmenian dynasty; most of his short reign was occupied by defending the empire against Alexander the Great, who proved victorious. Darius was treacherously slain by one of his satraps.

Darjiling, or Darjeeling: (1) A dist. of Bengal, British India, bounded by Nepal (W.) and Sikkim (N.). It is the N. portion of Rājshahi division, and has two distinct parts, one traversed by the Lower Himalayas, the other by 'tarai,' formerly all

jungle, but now cleared for tillage and tea-gardens. It produces grain, tea, india-rubber, and cotton. (2) Cap. of above district, 300 m. from Calcutta, connected with it by the N. Bengal State, and the Darjiling and Himalaya Railways. There are several churches, Queen's High School for girls, and other schools and a museum. The bazaar is thronged by queer folk from all parts, Lepchas, Limbus, Bhutias, Tibetans, Nepalese, Pahariās, Bengalis, Kashmiris and Marwaris, and it is difficult to make one's way through. The chief industry is the cultivation of tea, 21,000,000 pounds a year. At Lebong is a cantonment for British soldiers. The Eden Sanatorium (nearly 8000 ft. above sea-level) is here, for the sick and convalescent members of the army (acquired by England, 1835). Magnificent mountain views can be obtained, Everest and Kanchanjanga being visible. It is a favourite summer resort. In 1899 a storm and landslide caused much havoc. Pop. 27,213; of district 282,478.

Dark Ages, a name given to the early period of the Middle Ages between the fall of the Rom. empire, A.D. 475, and the revival of learning on the discovery of the Pandects at Amalfi, 1137—roughly a period about 700 years. The D. A. seemed to last longer in the N. than in the S., as the revival occurred in Italy sooner than in N. Europe.

Darlaston, a tn. of Staffordshire, England. Gunlocks and nails are extensively manufactured, and there are coal-mines, ironworks, and blast furnaces. Pop. 18,208.

Darley, Felix Octavius Carr (1822-88), an American artist and engraver; son of an actor of Eng. birth. He went to New York in 1848, engraving outline illustrations of Irving's works (*Sketch Book*, *Rip van Winkle*, *Legend of Sleepy Hollow*) for the American Art Union (1850). He also illustrated Judd's *Margaret*, 1856, which won high praise. He illustrated Lossing's *History of United States*; Hawthorn's *Scarlet Letter*, 1879; and the novels of Cooper and Simms. After visiting Europe he published *Sketches abroad in Pen and Pencil*, 1868. Among his larger works are: 'Cavalry Charge at Fredericksburg, Virginia,' 1867; 'Street Scene, Rome' (water-colour), 1876; 'Washington's Entry into New York'; 'Emigrants attacked by Indians.'

Darley, George (1795-1846), a poet and mathematician; began writing articles for various magazines. He joined the staff of the *Athenæum*, and became famous for his sarcastic reviews in it, an example being his attack on Talfourd's *Ion*. He published *The*

Errors of Ecstasie, 1822, a dialogue in blank-verse. *Lilian of the Vale*, a story containing the well-known song, 'I've been roaming,' appeared in 1826. Between 1826-28 he published manuals of geometry, algebra, and trigonometry, and a *Geometrical Companion*. Carlyle praised these treatises. *Labours of Idleness* contained other stories of his. His best lyrical drama was *Sylvia, or the May Queen*, 1827, praised by Lamb. He was much influenced by the Elizabethans, and edited Beaumont and Fletcher, 1840. *Repenthe and The Lammergeyer*, two of his poems, were published privately. *It is not Beauty I Demand* (anonymous, in Palgrave's *Golden Treasury*) is really his. See Stedman, *Victorian Anthology*, 1895.

Darling : (1) An Australian riv., 1160 m. long, rising as the Macintyre in the Dividing Range between New South Wales and Queensland. For some way it forms the boundary between the two, and enters S.E. Queensland. It is a tributary of R. Murray, joining it at Wentworth. Other names are the Calewatta, or Barwon. It is navigable as far as Bourke at some times of the year, at others being merely a series of shallow lakes. Among its tributaries are R. Dumaresque, Colgoa, Warrego, Gwydyn, Macquarie, Bogan, and Namoi. (2) District of New South Wales, 50,000 sq. m. in area, in S.W. (3) Range of mountains in W. Australia, running N. to S., parallel with the coast, 20 to 70 m. inland. Sandalwood and timber abound. (4) Squatting and rich grazing district of S.E. Queensland, between River D. and Condamine, W. of Moreton Bay.

Darling, Sir Charles John, 1st Baron, of Langham, Essex, b. Dec. 6, 1849; eldest child of Chas. D., estate-manager. A delicate child, passed his boyhood principally at home—first at St. John's Abbey (Abbey House), Colchester, where he was b.; and then at Langham Hall. Articled to a solicitor in Birmingham, but did not serve out his time. Called to Bar in the Inner Temple in 1874, practised journalism and went the Oxford circuit. As a Conservative, contested Exeter (1884) and S. Hackney (against Sir Chas. Russell, 1885); returned for Deptford, 1888. Remained its representative until elevated to the Bench. Appointed Judge of the High Court and knighted, autumn of 1897—his appointment creating indignation in the Liberal party and consternation in the Temple (see Lord Birkenhead's *Contemporary Personalities*). Became known as the judicial humorist. Member of the Royal Commission on King's Bench, 1912; sworn of the

Privy Council Jan. 12, 1917. Presided over the ludicrous 'Black Book' (Pemberton Billing) trial, May-June 1918; and over the Committee on Courts Martial, 1919. Retired from the Bench in Nov. 1923; but temporarily returned, 1924, after ennoblement Jan. 12, to try *Robinson v. Midland Bank*—a case rendered sensational by the mystification about 'Mr. A.' He returned to the Bench again in 1931. Among the trials in which he was judge were the murder cases of Stinnie Morrison (1911) and Herbert Rowse Armstrong (1922). Publications: *Meditations in the Tea-Room*; *Scintillæ Juris*, 1877 (6th ed., 1914); *Seria Ludo*, 1903; *On the Oxford Circuit and other verses*, 1909; *Crime and Insanity, Murder and its Punishment, Musings on Murder*, 1925; *A Pensioner's Garden*, 1926.

Darling, Grace Horsley (1815-42), an Eng. heroine, b. in Northumberland; daughter of William D. (1795-1860), lighthouse-keeper on Longstone, one of the Farne Is. At the risk of their lives and at her earnest entreaty, she and her father rescued nine people from the *Forfarshire*, which was bound from Hull to Dundee, and was wrecked near Longstone Lighthouse in 1838. Their heroism was warmly appreciated and rewarded, but she d. of consumption soon afterwards. See *Grace Darling, her True Story*, 1880; Hope, *Grace Darling*, 1876; *Journal of W. Darling*, 1886.

Darling, Sir Ralph (1775-1859), an Eng. soldier and general. As ensign in the 45th Foot, he helped to suppress the negro insurrection under Fedor in 1793 in Grenada. In 1796 he was made military secretary, served in the W. Indies, and was deputy adjutant-general in the Walcheren expedition. Was governor of New South Wales, 1825-31. Accused of excessive severity he was recalled and tried, but acquitted and knighted by William IV. in 1835; he became general in 1841. Many places (river, mountains, downs, etc.) were named after him in this period of geographical discovery in Australia. See Braims, *History of New South Wales*, i., 1846; Heaton, *Australian Biog. Dict.*; Gurwood, *Wellington Despatches*, viii.; Parliamentary Papers, xxxvi., 1831.

Darling Point, a tn. of New South Wales, Australia, forming a suburb of Sydney.

Darlington, a bor. (parliamentary and municipal) in the S. of the co. of Durham, 18 m. S. of Durham, on the Skerne near its junction with the Tees. Its prosperity began with the opening in 1825 of the Stockton and Darlington Railway, the first railway on which a steam locomotive was

used for passenger traffic. The first locomotive so used, built by George Stephenson, now stands on a pedestal inside the London and North-Eastern Railway station. The railway company have extensive locomotive works here, and there are also manufactures of iron, steel, and worsted besides brewing and tanning industries. The town contains many good public buildings. It once belonged to the bishops of Durham, but was incorporated in 1867. Pop. 65,842.

Darlington Californica, the single species of its genus in the order Sarraceniacæ, is a pitcher-plant of

Thomas, 1895-1900. The *Cours de grammaire historique de la langue française* was edited by Muret and Sudre, 1891-95.

Darmesteter, James (1849-94), a Fr. orientalist, brother of Arsène, studied under Bréal and Bergaigne, graduated from Lycée Bonaparte Paris, 1867. He was tutor at L'École des Hautes Études, 1877; after Renan's death, secretary of the Asiatic Society, 1881; Professor of Iranian language and literature at the Collège de France, 1885. Among his most famous works are: *Haarvatat et Ameretat, essai sur la mythologie*



THE MARKET PLACE, DARLINGTON

the state of N. America which gives it the specific name. The flowers are pale green and white, and the plant requires a warm temperature to favour its growth.

Darmesteter, Arsène (1846-88), a Fr. scholar and philologist, of Jewish descent. He was a pupil of Gaston Paris (1867), entering l'École des Hautes Études (1869). He was tutor there (1872), then went to the Faculté de Paris as Professor of the Mediæval Fr. language and literature. His works are full of creative imagination and valuable, original suggestions. They include: *Gloses et glossaires hébreux-français*, 1878; *La vie des mots étudiée dans leurs significations*, 1887. With Hatzfeld he wrote *Le XVII^e siècle en France*. D. began with him also *Dictionnaire général de la langue française*, finished by Hatzfeld and

de l'Avesta, 1875; *Ormazd et Ahriman, leurs origines et leur histoire*, 1877; *Études Iraniques*, 1883, a most valuable work; *Le Mahdi* . . . 1885. D. visited India (1886), becoming fellow of Bombay University. *Chants populaires des Afghans*, 1888-90, resulted from this visit. He also wrote *Essais Orientaux*, 1883; *Les origines de la poésie persane*, 1888; *Essais de littérature anglaise*; *Les prophètes d'Israël*, 1892; and translations of selected poems by his wife. He translated the *Zend-Avesta* in *Annales du musée Guimet*, 1892-93; and edited it for Muller's *Sacred Books of the East*. He edited *La Revue de Paris* for a time. See *éloge in Journal asiatique*, iv., 1894; Cordier in *Royal Asiatic Society's Journal*, Jan. 1895; Gaston Paris, 'J. Darmesteter,' in *Penseurs et Poètes*, 1896.

Darmstadt, a tn. of Germany, and cap. of the Free State of Hesse, is situated at the foot of the Odenwald, 16 m. S. of Frankfort-on-Main, having broad streets and tasteful gardens. It was not until the last quarter of the nineteenth century that its iron foundries, boiler-factories and machine shops and chemical and pharmaceutical works made it a great industrial centre, while the activity of its architects, sculptors and artists, added applied art. The former Grand Ducal Palace now contains a museum and the State Library of 700,000 volumes. There are also the Landes-Museum with a Picture Gallery, the Technical Academy with 2750 students, and the Rathaus of 1599. Princess Alice, daughter of Queen Victoria, is buried in the Grand Ducal Mausoleum. Liebig, the chemist, b. 1803, was a native of D. Pop. (1925) \$9,500.

Darnetal, a tn. of France in the dept. of Seine-Inférieure. It is situated on the Rs. Robie and Aubette, 2 m. E. of Rouen. There are manufactures of heavy woollen goods, blankets, etc., also factories for calico-printing and cotton-spinning. Pop. 7520.

Darnley, an anct. Scottish barony of Renfrewshire, 4 m. from Paisley, 2 m. from Barrhead station. From it Sir John Stewart took the title Baron (c. 1461). He later became Earl of Lennox, and was grandson of Sir J. Stewart of D. (d. 1429). Henry, Lord D. (1545-67), was a descendant.

Darnley, Lord, see LENNOX.

Darrang, a dist. of British India in E. Bengal and Assam, situated between the Brahmaputra and the Bhutan and the Dalpa Hills. The headquarters of the administration are at Tezpur. The principal crop is rice. Pop. 337,000.

Dart, a riv. of England, which rises near Cranmere Pool, in the centre of Dartmoor. It is 36 m. long, 10 m. being tidal. At Totnes it widens into a broad estuary, and is navigated by steamers to and from Dartmouth.

D'Artagnan (hero in *The Three Musketeers*), see ARTAGNAN.

Darter, or **Snake-bird**, the popular name of several species of ciconioform birds allied to the cormorant and pelican. The birds are sinuous in progress when swimming on lakes, rivers, or seas to obtain their fishy prey, and when this is seen the snake-like neck allows the head to dart forward to seize it. The Ds. are widely distributed throughout Central and S. America, S. Asia, and Australia, and vary little in colour. *P. ankinga*, the American D., inhabits tropical regions; its general colour is greenish-black, the tail is tipped with brown,

the wings marked with silvery-grey, and the feathers are small and soft.

Dartford, a market town and par. of W. Kent, England. It is situated on the Darent, about 2 m. from its entrance into the Thames, and 16 m. E. of London. In 1355, Edward III. founded an Augustinian nunnery there, and in 1381 Wat Tyler's rebellion took place. The manufactures are machinery, gun-powder, and paper. In 1590 the process of rolling and slitting iron was first established in England here by a native of Brabant, and in the same reign paper-making was introduced by Sir John Spelman. Ric. Trevethick, the inventor of the locomotive steam engine, d. and was buried here in 1833. The foundation stone of the Livingstone Hospital was laid by Sir H. M. Stanley, the African explorer, in 1894. There is a memorial in the central park, to the martyrs burnt here in 1555. The London county mental hospital has accommodation for 2161 patients, and 2000 beds are available in the hospitals of the Metropolitan Asylums Board. Pop. 25,952.

Dartmoor, a plateau in the S.W. of Devonshire, England. Its length is about 23 m. and width 20 m. The mean altitude is 1500 ft. The higher parts are bleak, wild, and rugged, composed of masses of granite, the higher points of which are called tors; Yes Tor, 2028 ft., and High Willhays, 2039 ft., being the most lofty. The lowlands are well wooded and form a beautiful contrast with the bleak moorlands. In the centre of the moor lie the pools and morasses which form the headwaters of the chief Devonshire streams. Of the royal forest which occupied the centre of D. before the Conquest, small oaks and undergrowth in rough tracts alone remain. The moor abounds in interesting prehistoric antiquities, such as avenues of large standing stone, sacred or sepulchral circles, dolmens, etc. Near Chagford may be found a fine example of a primitive village of rude granite blocks. Much of the scenery is exceedingly wild and beautiful, Lydford Gorge being famous. The great convict prison at Princetown was originally built for Fr. prisoners in 1809, and has been utilised for its present purpose since 1855. A good picture of the scenery, atmosphere, and life of D. may be obtained from many of Mr. Eden Phillpotts' novels. See S. Baring-Gould, *The Book of Dartmoor*.

Dartmouth, a seaport and municipal bor. in S. Devon, 8 m. S.W. of Torquay, and 30 m. S.W. of Exeter. the town is picturesquely situated on the terraces of a craggy hill, near the mouth of the Dart. Many of the

streets are narrow, and include some well-preserved timbered houses. The castle, at the entrance to the harbour, dates from the reign of Henry VII., though the original castle was built in the time of Edward IV. D. is an important coaling station, and its spacious, land-locked harbour has made it a favourite resort of yachtsmen. It formerly had a considerable trade in Newfoundland fisheries, but its present trade is chiefly of a coasting character. The Royal Navy Cadet College is situated here. At D. Richard I. embarked with his crusaders for the Holy Land in 1190. Pop. 7219.

Dartmouth, a tn. of Nova Scotia, Canada, with a lunatic asylum, sugar refinery, oil works, etc. It is a splendid drive thither from Halifax by the Lakes. Pop. 7899.

the navy and army. Entrusted by James II. with the prevention of the landing of William of Orange, he did nothing, the disaffection of the fleet being marked. He took the oath of allegiance, but was in 1691 arrested for treason and *d.* in the Tower before trial.

Darton, a par. and tn. in W. Riding Yorkshire, England. It is situated on the Derne, 2½ m. N.W. of Barnsley. It has coal mines; manufs. screw and nails. Pop. 11,266.

Daru, Pierre Antoine Noel Bruno Count (1767-1829), a Fr. statesman and soldier, *b.* at Montpellier, educated at the military school at Tournon; was commissary to the Revolutionary army, 1793; was imprisoned on the charge of friendships to the Royalists, but was released or



[Great Western Ry.]

DARTMOUTH

Dartmouth College, an institution for the higher education of men, founded, 1769, in Hanover, New Hampshire. It now contains a yearly average number of over 2000 students, the majority working for the regular college B.A. degree. There are also facilities for studying medicine. In 1928 the building of the Fisher Ames Baker Memorial Library, donated by George F. Baker of New York, was completed at a cost of over one million dollars; in 1929 the Carpenter Art Building, a natural science laboratory, was also added. Admission to the college is by selection, special consideration being given to set character and qualities of leadership as well as scholarship.

Dartmouth, George Legge, Baron (1647-91), an Eng. admiral, the eldest son of William Legge, Earl of Dartmouth; he served in the navy during the Dutch War, 1665-67, and held many offices and commands in

the death of Robespierre. He then rose rapidly in the service and won great repute for his organising powers. In 1799 he was employed as chief commissary to the army in Italy by Napoleon, and continued in that service, being one of the most capable administrators in the army. He drafted the treaty of Presburg after the battle of Austerlitz. He was made Secretary of State, 1811, and retired from public life on Napoleon's abdication in 1814. After 1815 he was made a member of the chamber of peers.

Darvel, a burgh and tn. of Ayrshire, Scotland, situated on the Irvine, 10 m. from Kilmarnock. Carpets and lace are manufactured. Pop. 3790.

Darwen, a municipal bor. of Lancashire, England, 20 m. N.W. of Manchester by rail, situated on the Darwen. There are collieries and stone quarries; the town is a centre of the cotton trade, and has blast furnaces, paper mills, and fire-clay works. Pop. 37,906.

Darwin, Charles Robert (1809-82), naturalist, grandson of Erasmus D. (q.v.), and son of Robert Waring D. and Susannah, daughter of Josiah Wedgwood of pottery fame, was b. at Shrewsbury and d. at Down; buried at Westminster Abbey. He early evinced a passion for collecting, and a taste for chemistry. After leaving Eton he went to Edinburgh, and later to Cambridge, Universities. His studies appear to have been comprehensive, but they in no way inclined him, as was intended, to follow his father's profession of medicine. The subjects that fascinated him were zoology and botany, and his active mind and abundant energy manifested itself in a love of sport and a penchant for collecting beetles. The seal of his future career was set on the invitation, through the influence of his close friend Henslow, Botany Professor of Cambridge, to join H.M.S. *Beagle* as naturalist on her celebrated voyage in 1831 to S. America and the Pacific. The immediate results of his assiduity on this scientific mission are to be found in his first published work, *The Voyage of the Beagle*. From the time of his return, in 1836, he settled down in England for the rest of his life, marrying his cousin, Emma Wedgwood, in 1839. With the aid of his collections from the voyage and a treasury grant, he then worked on his second book, *The Zoology of the Voyage of the Beagle*. From this point the preparation of his great constructive theories begins. The industry he displayed in spite of poor health was remarkable. In 1859 his epoch-making *Origin of Species* was published, expounding the doctrine now known as Darwinism (q.v.). His later scientific speculations are in the main extensions of this theory. A curious feature in connection with the *Origin of Species* is the fact that its thesis was in its essentials formulated independently by his great friend, Professor Alfred Russel Wallace, while abroad, and who submitted his paper on the subject to D. The total absence of jealousy on the part of the two naturalists, and the harmony in which they severally conducted their researches, forms one of the romances of Eng. scientific progress. (See WALLACE, ALFRED RUSSEL.) In 1871 he published the *Descent of Man*, which in some respects excited still more attention than the earlier and greater work, by reason of its searching inquiry into the ancestry of man. In this connection it is curious to note that the prejudice excited in the vulgar mind by D.'s speculations was due in great measure to the error of supposing

that he advanced the theory of man's descent from the ape (see under DARWINISM). The theory of sexual selection as a process in the evolution of man, briefly adumbrated in the *Origin of Species*, was elaborated in the *Descent of Man*, but at the present day it has been very generally discredited. As a man D. possessed a strong frame, was thin and tall, and walked with a slight stoop, but in constitution he was far from robust, ultimately succumbing to some affection of the heart. In character he appears to have been a man of no pretensions and of considerable personal charm and warm sympathetic geniality. A full list of his works is to be found in the biography written by his son, Francis D. His botanical works include: *The Effects of Cross and Self-Fertilisation*, 1876; *The Fertilisation of Orchids*, 1862; *Different Forms of Flowers*, 1877; *Power of Movement in Plants*, 1880, which was a corollary of his *Movements and Habits of Climbing Plants*, 1875. Among his zoological works are, besides the works on the *Voyage of the Beagle*, the most popular of which is *A Naturalist's Voyage*, 1860, various works on *Cirripedia*, and the *Formation of Vegetable Mould through the Action of Worms*, 1881, and a monograph on *Fossil Balanidae and Verruroidae*, 1854. His works on geology were numerous, and include: *Geological Observations in South America*, 1846; *Geological Observations on the Volcanic Islands Visited*, 1884; *The Structure and Distribution of Coral Reefs*, 1842, all of them included in a general work entitled *Geology of the Voyage of the Beagle*, 1845. Miscellaneous works include the *Expression of the Emotions in Man and Animals*, 1872; *The Variation of Plants and Animals under Domestication*, 1868. See *Life and Letters of Charles Darwin*, edited by Francis D., 1877; and two volumes entitled *More Letters of Charles Darwin*, 1903, edited by Francis D. and A. C. Seward.

Darwin, Erasmus (1731-1802), Eng. scientific writer, poet and physician, b. at Elton, near Newark, Dec. 12. Educated at St. John's College, Cambridge, and at Edinburgh University, where he took his degree in medicine. He settled as a doctor at Lichfield, and won a high professional reputation, so much so that he was offered, but declined, the appointment of physician to George III. He is said to have been an athletic man and of temperate habits, the advantage of which he seems to have omitted no opportunity of pointing out to those over whom his influence extended, and in this

respect he rendered good service to the poor of Lichfield. His writings were varied, yet essentially those of a man of scientific mind, which bias robs his verse of the true poetic quality, full though its subject matter may be of sylphs, nereids of the grot and gnomes and dignified with the Spenserian formula of personification. Posterity has largely forgotten his work, yet his *Zoonomia* or *Laws of Organic Life*, published in 1793, a pathological work, together with a treatise on generation, is significant in that, according to his far more famous grandson, Charles D., he anticipated the views of Lamarck. But his literary reputation rests mainly on his poem *Botanic Garden*, published in 1781, a long poem in decasyllabic rhymed couplets, instinct with scientific interest in nature, but, if polished, artificial, stilted and pompous. In the second part, entitled *The Loves of the Plants*, he follows the system of Linnæus by personifying each plant; and he appends botanical comments in which the praise of scientific men recurs. He also published, in 1796, a continuation of his *Zoonomia*, the whole forming two vols., and in 1800 appeared his *Phytologia*, or *Philosophy of Agriculture and Gardening*, a lengthy work in one volume. All his works excited considerable attention, and by some were extravagantly praised, by others as unreasonably disparaged, but at the present day they are but little read or consulted, though they scarcely deserve to sink into complete oblivion; for they reveal a writer of highly original turn in mind, well versed in physics, with a rare aptitude for seizing and illustrating natural analogies. But he was over-fond of tracing false analogies, and showed the faults of a credulous collector and of a fanciful reasoner. He was a free thinker and, as implied above, an enthusiastic botanist, possessing an eight acre botanical garden. His first wife died; and to please his second he removed to Derby. He was a strong advocate of temperance. As a poet he lacked inspiration. By his first wife he was the grandfather of Charles D., by his second of Francis Galton. He died suddenly of heart disease at Beardsall Priory. Consult Hesketh Pearson's *Doctor Darwin* (DENT), 1931.

Darwin, Sir Francis (1848-1925), an Eng. botanist, the third son of Charles D. He was in intimate association with his father's work till the latter's death; was author of his father's biography. In 1884 appointed University lecturer and reader in botany to the University of Cambridge; president of the British

Association, 1908, at Dublin. Published *Elements of Botany*, 1895, and his admirable *Life and Letters of Charles Darwin*, 3 vols., published 1887, was followed by *More Letters*, 1903. In 1917 appeared *Diversions of a Scientist*; in 1920, *Stray Papers of a Scientist*. As a musician he played the bassoon at the Cambridge Musical Club.

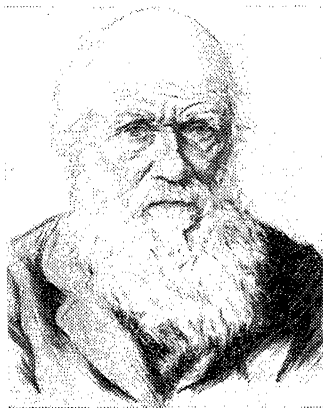
Darwin, Sir George Howard (1845-1912), an Eng. physicist and mathematician, the second son of Charles D. After a distinguished career at Cambridge University he went to the Bar, but returned to Cambridge as Plumian Professor of Astronomy and Experimental Philosophy, 1883. He was probably the greatest worker in applied mathematics since Lord Kelvin. His chief work was concerned with the mathematical problem of three bodies—with the attraction of rotating fluid bodies, with the theory of the tides and the estimate of their effects during the separation of the moon from the earth, and the pressure of loose earth. In what may be termed the historical department of astronomy, D. was chiefly concerned with the genesis of the moon from the earth. He was president of the British Association in 1905 in S. Africa, Copley medallist, 1911. His published work is mainly to be found in papers of the various scientific societies. He published a popular summary of his work on the tides, *The Tides and Kindred Phenomena of the Solar System*, 1898.

Darwin, Mount: (1) Situated near the S. coast of S. Island, Tierra del Fuego, and attains a height of about 7000 ft. D. Sound is on the S.W. of King Charles South Land, Tierra del Fuego. (2) D. Port is a harbour of S. Australia in N. territory.

Darwinism, or the Darwinian Theory, a theory popularly but erroneously identified with the dawn of the method of evolution, especially as applied to the genesis of the human species. The D. T. as expounded in *The Origin of Species*, accepting the preconceived notion of evolution as such, proceeded, by a brilliant extension of the Lamarckian opinion that all species, including man, are descended from other species, to enunciate by the light of a mass of biological facts the law of natural selection, and indirectly to refute the traditional belief in the immutability of species and the expression of that belief in the current theological conception of a special or separate creation by direct Divine interposition. D., or more popularly, the doctrine of the survival of the fittest through a process of natural selection, is primarily concerned with the fact

of the existence of variations in species, as explanatory of the hitherto incomprehensible and marvellous co-adaptation in nature of organic beings. Briefly, D. or the D. T. is this: There is no independent creation of organic beings from an archetype, their embryological relations, mutual affinities, and geographical distribution being opposed to any such hypothesis; an investigation of plants and animals shows that man, by a process of artificial selection, conscious or unconscious, has been able to produce for his own ends numerous variations of species; applying this principle of artificial selection of species under domestication to organic beings in a state of nature, the old distinctions between species and varieties break down except in so far as they are distinguishable through their intermediate linking forms or gradations; in nature dominant or flourishing species produced the greatest number of varieties, and the slight variations of all parts of an organism furnished in nature itself the material for selection. Those organic beings that varied, however slightly, in a manner profitable to themselves have the best chance of surviving, and therefore of being naturally selected. Natural selection inevitably causes much extinction of the less improved forms of life, and from a consideration of the high geometrical ratio of increase of organic beings to the means of subsistence a struggle for existence must follow, and that struggle is most severe between varieties and individuals of the same species. Hence the process of natural selection leads to the survival of the fittest, or the preservation of favourable individual differences and variations, and the corresponding destruction of those which are injurious. *The Origin of Species* also briefly outlines the process of sexual selection, or 'the struggle between the individuals of one sex, generally the males, for the possession of the other sex.' The hypothesis of sexual selection is used by Darwin to explain peculiarities appearing in one sex and becoming hereditarily attached to that sex whether those peculiarities appear under domestication or in nature. *The Descent of Man and Selection in Relation to Sex* is really an application of the principles expounded in *The Origin of Species* to the human species. In this work Darwin collects evidence to show the descent of man from some lower form, and from the evidence approved by homologous structures and embryological development infers that man and anthropomorphic apes had a

common ancestor. The theory of sexual selection has been very generally abandoned at the present day. Darwin accepted the theory of evolution apart from the existence of its motive-cause. But the proof of the existence in nature of the material for variations of species is believed by many to supply a motive cause in itself. There can be no doubt of the almost universal acceptance of D., notwithstanding the prejudice roused at its promulgation, chiefly in religious quarters. The value of the theory in relation to evolution is shown by the application of the latter



CHARLES DARWIN

to sociology, psychology, and the growth of political institutions. In the subsequent application of the method of evolution to other sciences, the theory of natural selection not infrequently found less favour than that of Lamarck, who early laid emphasis on the effect of use and disuse or habit in species-formation and its hereditary transmission. D. taught that habit, though it played a considerable part in some cases in the modification of the constitution and structure of species, has been in its effects largely combined with and overmastered by the natural selection of innate variations, and the interpretation of D. as establishing the creation of new species from the accumulative power of natural selection has since the controversy over hereditary transmission found very general acceptance. One of the subtlest criticisms of D. was that of Huxley, who, while championing the theory against dogmatism, him-

self advanced the objection that man, by artificial selection, could not induce sterility in domestic breeds, and that until he could do so, variations were not satisfactorily accounted for by natural selection. The difficulty offered by the existence of unity of type, or the constant fundamental agreement in structure in organic beings of the same class, is met by Darwin himself who thinks the explanation of the unity lies in the fact of unity of descent. In the field of philosophical speculation, D. would seem to be inconsistent with any teleological conception of the universe, or the theory of a world created out of chaos by the intervention of a Divine Being proceeding on the lines of a coherent and beneficial plan. It substitutes a purely mechanical conception of organic development based on the mere instinct of self-preservation, which, except in so far as the spontaneity of the variations and mutual affinities of species is assumed so as to lead to the inference of some innate organising principle, is complete. D. is not avowedly concerned with the absolute origin of life or, as was the teaching of Buffon, with the evolution of the primordial germ. Professor Wallace, who worked out the theory of natural selection independently of Darwin, sees in it no necessary inconsistency with teleology, and the existence throughout evolution of an upward guiding principle from without. It may not be impossible, too, to agree with some Ger. philosophers who regard D. as inculcating a new determinism (*q.v.*), based on the relativity of all moral ideas in harmony with successive stages of social progress. Nietzsche, too, criticises D. through a denial of the primary importance of the instinct of self-preservation, saying that 'Psychologists should bethink themselves before putting down the instinct of self-preservation as the cardinal instinct of an organic being. A living thing seeks above all to discharge its strength—life itself is Will to Power; self-preservation is only one of the indirect and most frequent results thereof.' Huxley, however, acutely criticises the whole theory of evolution by pointing out that all the laws of physical evolution can never aid us in comprehending the origin of mind. Recently, Professor Schaefer startled the world by a materialistic theory, not entirely original, that life has originated by a process of evolution from non-living elements, and that we may eventually succeed in building up living protoplasm in the chemical laboratory. But he was careful to distinguish 'life' from 'soul,' and the genesis of the latter is

as much as ever in the region of the transcendental. Finally, it may be conceded, and from the most optimistic standpoint, that D. favours a love of the law of nature, not dissimilar to the Stoic conceptions, and replaces current religious emotions by a love of the æsthetic in nature, and a pantheistic conception founded on the belief of the essential identity of man and the external world. See *Variation of Plants and Animals Under Domestication*, 1868; *Origin of Species*, 1859; *Descent of Man and Selection in Relation to Sex*, 1871; Wallace's *Darwinism*, 1889. See also BIOLOGY, EVOLUTION.

Das, Chitta Ranjan (1870-1925), Indian Swarajist leader; b. in Calcutta; son of Bhubon Mohan Das, a solicitor, who was of a Vaidya family of Telirbagh in Vikrampur. Educated at London Missionary Society's Institute, Bhowanipur; and at Presidency College, Calcutta—where he graduated, 1890; proceeding to England the same year. Called to Bar at Middle Temple, 1892. Returned to India, 1893, and practised at Calcutta Bar until 1921. By that time he had gained renown as a defender in political cases. He first entered the Indian Congress in 1906, and was elected its president in 1921; but, before the Congress met at Ahmedabad, he was arrested Dec. 10 of that year for unlawfully issuing an appeal for 'Volunteers,' and he served a sentence of six months in prison. He was president next year, at Gaya, and in Dec. 1923 he entered Bengal Legislative Council, where he brought about deadlock by contriving the rejection of the vote for Ministers' salaries. The Governor, Lord Lytton, countered this action by offering the post of Chief Minister to Das, who, in Jan. 1924, refused it. That year he was elected first Mayor of Calcutta, and his combination was successful in June as against the Gandhi faction at the Swarajist Conference at Ahmedabad. He d. at Darjeeling, June 16, 1925.

Dash, Comtesse de, the pseudonym of Gabrielle Anne de Cisternes de Court  ras, Marquise de Poillon de Saint-Mars (1804-1872), a Fr. novelist, b. at Poitiers. She was a woman in fashionable society and her numerous novels deal principally with love and intrigue. She is said to have written five or six volumes in a single year, and the list of her novels is accordingly long. *Les Galanteries de la cour de Louis XV.*, *Le Salon du diable*, *Les Bais masqu  s*, *Le jeu de la Reine* may be mentioned.

Dashkoff, Caterina Romanovna Vorontsoff, Princess (1744-1810), a Russian authoress, daughter of Count

Roman Vorontsoff, married at fifteen to Prince Mikhail D. She had received a high-class education and early displayed great abilities. Her elder sister, Elizabeth, was mistress of the Emperor Peter III., and in 1762 the Princess took a leading part in placing Catherine II. on the throne. She quarrelled with the empress on the latter's refusal to make her a colonel of the Imperial Guards. Her scientific and literary abilities gained her an entrance to all the learned societies of Europe. In 1782 she was made director of the St. Petersburg Academy of Arts and Sciences, and in 1784 first president of the Russian Academy. In 1796 the Emperor Paul deprived her of her offices, and she retired to her estates in Moscow. See her *Autobiography*, published in London, 1814.

Dashkova, or Daschkowa, a tn. of Russia, in the dist. of Mohelev. It is situated on the Dnieper. The Fr. were defeated here in 1812 by the Russians.

Dashwood, Sir Francis, Bart., fifteenth Baron Le Despencer (1708-81), Chancellor of the Exchequer, at a very early age became notorious for riotous living in an age when much liberty of action was allowed to a 'Buck.' After making the grand tour, during the course of which he indulged in many mad pranks, he was given a minor appointment in the household of Frederick, Prince of Wales. He presently became president of the Dilettante Society, and later founded the infamous brotherhood of the Monks of Medmenham, among the members of which were Bute, Sandwich, Wilkes, Thomas Potter, and Paul Whitehead. Entering Parliament in 1741 as an opponent of Wilkes, he was twenty-one years later appointed by Bute Chancellor of the Exchequer, but his general incompetence and his ignorance of financial affairs were so great that his tenure of office did not survive Bute's fall in the spring of 1763. In that year the abeyance into which the barony of Le Despencer had fallen was terminated in his favour, and he became premier baron of England. In the House of Lords he, on one occasion, unconsciously created much merriment by the sincerity with which he, the most dissolute of men, denounced Wilkes for printing the *Essay on Women*. In spite of his incapacity as a statesman, Chatham made him joint Postmaster-General in 1766, which office he held until his death.

Dass, Petter (1647-1708), a Norwegian poet, b. at Nord Herø, Norway. He was the son of a Scottish merchant, Peter Dundas, and was

ordained priest in 1672, and after being for some years chaplain at Nesne, was presented with the living of Alstahoug. His wonderful power of description in verse has led him to be styled the 'father' of modern Norwegian poetry, and his most famous poem, *Nordlands Trompet*, is still often quoted by the priests and peasants in the N. of Norway. The collected writings of D. were edited by Dr. A. E. Eriksen (1873-77).

Dasyurus, a genus of carnivorous marsupials placed near to the bandicoot and opossum genera; the species are called dasyures or native cats. They inhabit the Australian region, are nocturnal in habit, and are extremely ferocious. The body of the D. is viverrine in form, dark brown and white in colour, and a hallux is sometimes present.

Date. The D. palm, or *Phoenix dactylifera*, is a tree of the natural order Palmae, cultivated chiefly in warm countries for its fruit. The stem is generally 20 to 30 ft. high, and is crowned at the top by leaves which



DATES GROWING

often split and become pinnate. The inflorescence is enveloped in a large spathe when young. The dioecious flowers are in clusters. The fruit contains a stone which cases the embryo in a mass of hard endosperm. The male and female flowers are borne on separate trees, and as it is impossible to distinguish them before the flowers appear they have to be artificially fertilised. No difficulty is found in the cultivation of the D. palm, plenty of sun, light and sandy rather than rich soil, and a certain amount of water, are the only conditions required. They commence to bear fruit at eight years old and continue to do so for

more than a century. The *D.* is a very important article of food in Arabia, where other foods are hard to obtain. It is eaten raw, roasted, or ground and pressed into cakes. The leaves are used for matting, and the wood for any kind of carpentry in which a light species only is required; the stem-fibre is made into ropes. It is largely exported. It is mentioned in the earliest records of the Assyrians and Greeks, and the Jews also used it as a symbol of victory.

Date Plum, a name given to several species of *Diospyros* in the order Ebenaceæ. *D. lotus*, the common *D. P.*, or European lotus, has long shining leaves, white flowers tinged with pink, and fruit almost like a cherry. It is really a tropical tree, but has been naturalised and is cultivated in the S. of England, where the fruit is used for preserves. *D. Kaki* is the Chinese *D. P.*, or persimmon.

Datia, *Ditteah*, or *Datiya*, a native state, under British protection, of Bundelkhand, Central India. The town of Datia is 15 m. N.W. of Jhansi, and 125 m. S.E. of Agra. It is almost entirely built of stone, and is surrounded by walls. Pop. of state 180,000, town 25,000.

Datis (Gk. Δάτις), an Indian general who, with Artaphernes, commanded the army of Darius in the expedition he sent against Athens, 490 B.C. He succeeded in capturing Eretria, but was defeated by the Athenians under Miltiades at the famous battle of Marathon, and had to abandon any further attempt against Greece.

Datolite, a mineral composed of basic calcium and boron orthosilicate, $\text{Ca}(\text{BOH})\text{SiO}_4$. It is generally found as glassy crystals, or as masses with a granular to compact texture. It is colourless or with a slight tinge of green and may be transparent or opaque. Hardness, 5-5½; sp. gr. 3.0. It is found in Norway, Scotland, the United States, and Tasmania.

Datura, a genus of Solanaceæ, flourishes in tropical and temperate countries. *D. stramonium*, the thorn-apple, is the only species which grows wild in Britain; it occurs as an annual on rubbish-heaps and waste places near houses, where it grows to a height of about 3 ft. The leaves and seeds possess properties similar to those of henbane and belladonna, and act as a powerful and dangerous narcotic. *D. arborea*, the angel's trumpet, and *D. bicolor* are beautiful, arborescent S. American plants; the former bears long white flowers, while those of the latter are yellow or scarlet.

Daub, **Karl** (1765-1836), a German Protestant theologian. His great

object was to reconcile theology with philosophy, and to this end he wrote many metaphysical works, but his persistent ignoring of historical criticism made them of little real value. At different times he was influenced by Kant, Schelling, and Hegel, and his writings reflect a good many of their views. His works include: *Judas Ischarioth*, 1816-18, and *Die dogmatische Theologie jetziger zeit*, 1833.

Daubenton, **Louis Jean Marie** (1716-99), a Fr. naturalist. After assisting Buffon at the Jardin du Roi, he became curator and demonstrator in the Cabinet of Natural History, and assisted to compile the *Histoire Naturelle*. During the Revolution he held the chairs of natural history and mineralogy. Elected to the senate, he was seized with apoplexy at his first attendance, and died shortly after.

Daubeny, **Charles Giles Bridle** (1795-1867), an English chemist, botanist, and geologist. He was professor of chemistry, Oxford, 1822; of botany, 1833, and represented the universities at the first meeting of the British Association, 1831. He travelled largely and made important studies of volcanic action. His numerous works include: *Active and Extinct Volcanoes*, 1848; *Introduction to the Atomic Theory*, 1831; *Trees and Shrubs of the Ancients*, 1865.

D'Aubignac, see AUBIGNAC.

D'Aubigné, see AUBIGNÉ.

Daubigny, **Charles François** (1817-78), a Fr. painter. After two years' study in Italy he returned to Paris, and his landscapes of the Barbizon school, were recognised as mastery. His 'Lock at Optevoz' was bought by the state, 1855, and he was made a chevalier of the Legion of Honour, 1859. His finest landscapes, usually of river scenes, were painted between 1864 and 1874. His 'Springtime' is in the Louvre. With other painters of his school, his works fetch very high prices in art sales at the present day.

D'Aubusson, **Pierre**, see AUBUSSON.

Daucus, a genus of Umbellifereæ, is cosmopolitan but for Australia, and in Britain is represented by *D. carota*, the carrot. In its wild state the root of the plant is hard, wiry, and juiceless, but when cultivated it becomes succulent and nutritious.

Daudet, **Alphonse** (1840-97), a Fr. novelist, b. at Nîmes. His father, Vincent D., was a silk manufacturer. The family suffered many misfortunes and D.'s early years were not happy owing to the poverty following on the failure of his father's business. In 1856 he went to Alais as an usher to a boys' school, but the life was impossible, and in 1857 he went to Paris to

live with his brother Ernest, who was a journalist. He was some time throwing off the depression of his misery as an usher, and the memory of his wretched experiences haunted him, as it has many who, like him, were made for finer things. In 1858 he published his first volume of verse, *Les Amoureuses*, and at once obtained employment on *Le Figaro*. Through this post he was made secretary to De Morny, with whom he remained till the latter's death in 1865. During 1866 he published *Lettres de mon Moulin*, and in 1868 *Petit Chose*, which contained memories of his early life. He collaborated with others for the stage, and wrote *L'Arlésienne*. In 1872 he published the first of the immortal 'Tartarins,' *Les Aventures prodigieuses de Tartarin de Tarascon*,



ALPHONSE DAUDET

in which he satirised or rather burlesqued his fellow Provençals. It was and still is read in nearly every language of Europe. In 1874 he wrote his most masterly work, *Fromont Jeune et Risler Aîné*, which struck a new note in Fr. literature, the two successive works showing that he could move to tears and laughter. The story of an illegitimate child, *Jack*, followed. His power of making his characters live is clearly shown in this. He has been charged with being an imitator of Dickens, but he was in himself a master of the new naturalist school of fiction, and always went to real life for his characters and situations. In fact, the more justifiable criticism is that he was prone to make his characters transcripts of real personages too easily identified. *Le Nabab*, 1877; *Les Rois en Exil*, 1879; and *Numa Roumestan*, 1880, are notorious examples; in the last

Gambetta is obviously portrayed. *L'Immortel*, 1888, contained a savage satire on the Fr. Academy, to which he never was elected. His other novels include *Sapho*, 1884, and the conclusions of *Tartarin sur les Alpes* and *Tartarin Voyageur*. His *Trente ans de Paris*, 1887, and *Souvenirs d'un Homme de Lettres*, 1888, gave a vivid picture of his literary and social life. He wrote some charming children's stories, the best known being *La belle Nivernaise*. He was a member of the literary circle of Zola, Flaubert, and the De Goncourts, Edmond de Goncourt dying in his house. His wife, Julia Allard (see below), shared his literary labours, and their marriage was extremely happy. See E. Daudet, *Mon frère et moi*; L. A. Daudet, *Alphonse Daudet*, 1898; *The Works of Alphonse Daudet* (English translation), 1902; A. Hermant, *Lives and Criticisms*, 1903; E. Diederich, 1900. See also A. Symons, *Studies in Prose and Verse*, 1904.

Daudet, Ernest Louis Marie (1837-1921), a Fr. author, b. at Nîmes; an elder brother of Alphonse D. Well known as a writer of novels and as a political journalist. He is the author of *La Terreur Blanche*, 1878, and *Souvenirs de la Présidence du Maréchal MacMahon*, historical works of considerable interest, and he wrote a biography of the Princess Lievin (the Princesse de Cadignan of Balzac), entitled *Vie d'Une Ambassadrice*, 1903; also *Soixante Années du Règne des Romanoff*, 1919. Died at Petites-Dalles.

Daudet, Julia Allard, Madame Alphonse (b. 1847), a Fr. authoress, wife of Alphonse D., the novelist. She wrote, under the pseudonym 'Karl Steen,' several literary sketches and studies, and in her own name *Impressions de Nature et d'Art*, 1879; *L'Enfance d'une Parisienne*, 1888. Her latest work is *Journal de Famille et de Guerre*, 1920.

Daudet, Léon (b. 1868), a Fr. author, the son of Alphonse D. He has written several satires, notably one upon doctors, entitled *Les Morticoles*, 1894, and another upon republican politicians, entitled *Les Parlementeurs*, 1901. His works also include: *L'Astre Noir*, 1893; *Le Voyage de Shakespeare*, 1896; *Les Idées en Marche*, 1896; *Suzanne*, 1897; *Sebastian Gouvès*, 1899; *Les deux Etreintes*, 1900. In 1907 he arranged with Charles Maurras, for the daily issue of the *Action Française*, a paper of extreme royalist politics; and for twenty years he kept up interest in it. In 1919 he entered the Chamber as a Paris deputy, but he was defeated in 1924. In 1925 he accused a chauffeur of murdering his (D.'s) son, whose

death had been attributed to suicide. For persisting in this accusation he was imprisoned; but his friends, by a trick, obtained his release, and he fled to Belgium. At the end of 1929 he was pardoned, and he returned to Paris, Jan. 1930.

Daudin, François Marie (1774-1804), a Fr. naturalist, *b.* at Paris. He wrote many books on zoology, the best known being a work entitled *Histoire Naturelle Générale et Particulière des Reptiles*, 1802-3, a book that is of considerable value to herpetologists, as it describes many generic and specific forms for the first time.

Daudnagar, a tn. of Bengal, British India, situated on the Son, in the dist. of Ganya, 90 m. S.W. of Patna. There are manufactures of cotton and woollen goods, and a considerable river trade is carried on. Pop. 10,000.

Daughish, John (1824-66), *b.* in London. He invented a process for the manufacture of aerated bread, which was brought into operation in Great Britain in 1859. Carbonic acid gas was evolved in a generating vessel by the action of sulphuric acid on chalk, and after being purified was forced at high pressure into water which was then used with the flour to make the dough. The great object was to lessen the risks incurred during the ordinary process of fermentation by a variable temperature, and to ensure certain and uniform results.

Dauin, a small tn. situated on the island of Negros, in the Philippine Archipelago. It was formerly called Buglas Island. Pop. 8000.

Daulatabad, Dowlatabad, or **Deogire**, a fort. tn. of India, in Hyderabad, 10 m. N.W. of Aurungabad. The fortress is placed 300 ft. high upon a perpendicular rock, and is apparently inaccessible, the means of reaching the top being through a subterranean passage in the rock. In spite of its position the fort has been captured many times. In the vicinity are cave temples.

D'Aulnoy, see **AULNOY**.

D'Aumale, see **AUMALE**.

Daumier, Honoré (1808-79), a French caricaturist and painter, born at Marseilles. He joined the staff of *La Caricature*, where his scathing caricatures attracted attention; one of the king, Louis Philippe, led to his imprisonment (1833). He then drew for *Charivari*, his social caricatures making artist and paper famous. He was also a serious painter of high rank, whose pictures are only now attracting the attention they deserve. He became totally blind. See *Arsène Alexandre's* Life, 1888, and H. Frantz and Octave Uzanne, 'Daumier and Gavarni,' *The Studio*, 1904.

Daun, Leopold Josef Maria, Count von, Prince of Thiano (1705-66), an Austrian field-marshal, *b.* in Vienna. He was made a colonel during the War of the Polish Succession (1734-35), general in the war against the Turks (1737-39), and field-marshal in the War of the Austrian Succession. His cautious and sometimes over-prudent generalship was frequently criticised.

Daunii, the ancient name for the inhabitants of Daunia, which was a co. of Italy in the N. of Apulia. The name is derived from Daunus, an Illyrian chief who conquered it. It now forms a part of the Neapolitan province of Terra di Bari.

Dauphin, the title formerly borne by the eldest son of the king of France, abolished after the Revolution of 1830. The childless Comte de Vienne Dauphiné first gave the property and title to Philip VI.'s grandson.

Dauphiné, one of the old provinces of France, on the S.E. frontier between Provence and Savoy. Its capital was Grenoble. We first hear of it in the possession of the Allobroges, Caturiges, and various Celtic tribes, and then it was taken into the Roman empire. Later it became part of the kingdom of Burgundy, and thence passed into the possession of the Franks. The Carolingian empire was split up and redistributed, and D. was taken into the second Burgundian empire of Arles. From the ninth to the twelfth centuries it changed its entity, being divided into various principalities. The Burgundian succession failed, and it was willed to the German emperor, in whose possession it remained till 1343, when it was given back to France. In support of political freedom a convocation was held at Vizelle in 1778 to protest against the dissolution of the provincial parliament. D. now comprises Hautes Alpes, Isère, and Drôme.

Daurat, Jean (1508-88), a French poet and scholar, *b.* at Limoges. His original name was Dinemandy. He was appointed a page in the household of Francis I., and became a learned classical scholar and director of the Collège de Croqueret. Here he founded the famous society of young poets, the Pléiade, so called after the group of seven Greek poets of Alexandria. The group consisted of Baif, Belleau, Pontus de Thyard, and the more famous Ronsard and Joachim du Bellay. Étienne Jodelle was attached later. In 1556 D. became professor of Greek at the Collège Royal.

Davanzati, Chiaro (c. 1230-78), an Italian lyrical poet, *b.* at Florence. He commenced by writing lyrics in the style of the Provençals and

Sicilians, but later he became a follower of Guittone of Arezzo. D'Ancona's *Antiche Rime* (1875-88) includes all his best work.

Davao, a prov. in S.E. Mindanao, Philippine Is., comprising the best hemp land in the is. Of the 119,304 inhabs. more than half are pagans. Their women weave excellent cloth, and the men make metal articles. Cap. Davao. Pop. 13,300.

Davenant, Charles (1657-1714), an English writer on political economy, eldest son of Sir William D., the poet. He practised as a lawyer at Doctor's Commons, was Commissioner of Excise, 1683-89, and Inspector-General of Customs, 1705-14. He was secretary to the Commission which settled the union with Scotland. As an economist he at first showed some free-trade tendencies, but later adopted the orthodox mercantile theory. A complete edition of his numerous pamphlets and works was published in 1771.

Davenant (or D'Avenant), Sir William (1606-66), an English poet and dramatist, b. at Oxford, son of the proprietor of the Crown Inn. The



SIR WILLIAM DAVENANT

story that Shakespeare was his real father was fostered by D. himself, but there is no certainty about it. At first attached as page in various noble households, the murder of his patron, Lord Brooke, in 1628, left him without means, and he turned to the stage. He wrote the words for some masques of Inigo Jones, such as the *Temple of Love*, 1634; his earlier plays were *Albion*, 1629, and *The Cruel Brother*, 1630. His best play, a comedy, *The Wits*, was produced in 1636. In 1637 he succeeded Ben Jonson as poet-laureate. He was an ardent royalist,

and was knighted for bravery at the siege of Gloucester, 1643. He was captured on a mission to Virginia to establish a colony, 1650, and imprisoned, but was released through the good offices of Milton, whose life, it is said, he saved after the Restoration. In the reign of Charles II. he took a prominent part in the development of the theatre, especially in the matter of elaborate scenery and stage effects, at his theatre the 'Duke's' in Lincoln's Inn Fields. His numerous plays and adaptations were worthless, and his great epic, *Gondibert*, 1653, is dull, except for some brilliant and quotable passages. His shorter lyrical poems, published first, 1638, with the title *Madagascar*, contain some verses that still live. In 1656 he produced the first opera in England with Mrs. Coleman, the first actress introduced on to the English stage. He was buried in Westminster Abbey. See Laing and Maidment, *Collected Works*, 1872-74.

Davenport, a tn., co. seat of Scott co., Iowa, U.S.A., situated on the Mississippi, opposite Rock Is., with which it is joined by two bridges; it is connected by rail to the Chicago and N.W. Railway. D. is a see of a Roman Catholic and Protestant Episcopal bishopric, and is an important centre by river and rail for coal and grain. The Rock Is. arsenal is the largest munitions plant in the U.S.A. The first bridge across the Mississippi was built at this point in 1853. It was founded in 1835 by Colonel George Davenport. Pop. 60,751.

Davenport, C. B. (b. 1866) American biologist at Harvard University. He held the position of instructor of zoology from 1893-99. Subsequently assistant professor of zoology at the university of Chicago. Since 1904, director of the station for experimental evolution of the Carnegie Institution, and from 1898 to 1921 he was director of the Marine Biological Laboratory of the Brooklyn Institute. His chief publications are: *Experimental Morphology*; *Statistical Methods*; *High-School Zoology*; *Eugenics*; and *Heredity in Relation to Eugenics*; *Heredity of Skin Color in Negro-White Crosses*, 1913; *The Feebly Inhibited—Nomadism and Temperament*, 1915; *Naval Officers—their Development and Heredity*, 1919; *Body Build and its Inheritance*, 1923. He has also collaborated with Major A. G. Love in exhaustive inquiries into the physical fitness of men drafted for the Great War.

Davenport, Fanny (Lily Gipsy) (1850-98), an American actress, daughter of Edward Loomis D. and Fanny Vining, both actors; first appeared

at the age of twelve in *Faint Heart Neer Won Fair Lady*; later in Sardou's *Fedora* and *Cleopatra*.

Davenport Brothers (Ira and William), American illusionists, who, having mastered some difficult tricks with ropes, gave themselves out as having the aid of spirits; they were exposed by Maskelyne, among others.

Davenport, John (1597-1670), a Puritan divine, *b.* at Coventry, England, educated at Oxford: fled to Holland under Laud's persecution. Went to America, and was one of the founders of the New Haven Colony, Connecticut. He opposed the 'Half-way Covenant,' and published many theological works.

Daventry, a municipal bor. and tn. of Northamptonshire, England. It is situated near the sources of the Nene and Avon, 12 m. W. of Northampton. The manufacture of boots and shoes is carried on. It is noted in history for the fact that in 1645 Charles I. stayed there a week, prior to the battle of Naseby. Has an important wireless station (see BROADCASTING). Pop. 3532.

Davey, Richard Patrick Boyle (b. 1848), an English author. He commenced his literary career in New York, where he was for some time editor of the *Spirit of the Times*. He was the author of a number of novels and plays, the best known of his plays being *Inheritance*, which ran for over a hundred nights in New York. His works include: *Victoria, Queen and Empress*, 1897; *Cuba, Past and Present*, 1898; *Historical London*, 1902; and *The Pageant of London*, 1905.

Davey of Fernhurst, Horace Davey (1833-1907), an English lawyer, *b.* at Horton, Bucks.; educated at Rugby and Oxford, took the highest honours in classics and mathematics, and was Eldon law scholar; for long the leading Chancery barrister. He was Solicitor-General in the Gladstone ministry, 1886. In 1893 he was made a lord justice of appeal, and in 1894 a lord of appeal in ordinary, with the usual life-peerage.

David, a city and cap. of the Chiriqui dist. in Panama. It is situated on the Rio D., in a fertile valley, 8 m. from the entrance of the river into the Pacific. Tobacco is largely cultivated, and stock raising is an important industry. Pop. 6360.

David (probably 'beloved'), the second of the kings of Israel, was the son of Jesse the Bethlehemite. He was the youngest of Jesse's sons, and his business was the guardianship of the flocks of sheep. Of D.'s introduction to the court two accounts are given, but it seems more reasonable to credit that which traces it to his skill

on the harp (1 Sam. xvi. 14 ff.). The account of his conflict with Goliath is difficult to reconcile with other parts of the historical books. Be this as it may, D. quickly rose to a responsible position under the king, though at the same time his prowess raised the royal jealousy. Saul gave him his daughter Michal to wife, but his attitude then became so threatening that it was only by the help of Jonathan and his wife that David escaped with his life. D. hastened southward, and after a short stay at Nob, finally settled in the cave (*i.e.* hill-fortress) of Adullam. Here he gathered round him a small band of outlaws, numbering in all some 400 men. D. now became leader of this band, but steadfastly refused to take part in any designs on the 'Lord's anointed.' He subsisted on contributions levied on border territories in return for the protection he afforded them against the Philistines, Amalekites, and other foes of Israel. Saul, however, pressed him hard, and it was no longer possible for him to continue the one-sided conflict. His following now numbered 600 men, and with these he placed himself at the service of Achish, King of Gath. From him he obtained the lordship of the frontier town of Ziklag. Meanwhile both Saul and Jonathan had fallen at Gilboa, and Israel was in a chaotic state. D. moved to Hebron and was soon acknowledged as king by the men of Judah, while the rest of the country remained in the hands of Ishbaal (Ishbosheth), and the powerful Abner. To this period may well belong the conquest of the Jebusite stronghold (Jerusalem), ascribed in the narrative to the later period when all the country was in his hands. This came to pass on the death of Ishbosheth. The Philistines, whose vassal he had hitherto been, now opened war upon him, and many victories are ascribed to him by the chroniclers. Then followed a succession of wars with Moab, Ammon, and Edom, and D.'s success 'united all the tribes from Dan to Beersheba.' During these campaigns occurred the grievous sin, to the results of which must be ascribed so many of the woes of the latter part of D.'s reign. Absalom, his favourite son, raised a revolution which resulted in his death, and this was followed by still another revolt, that of Adonijah, who was jealous of D.'s design of leaving the crown to Solomon. In spite of the stains which soil D.'s character, and which are, indeed, those of his time, not the most destructive criticism of Bayle, Voltaire, and the rest has been able to do away with eulogistic tradition of the ages. Though recent criticism has de-

monstrated the impossibility of the Psalter being to any extent his own composition, yet he is universally regarded as the originator of the poetic school. But his great claim to honour is as a legislator. He 'executed judgment and righteousness unto all his people,' and, as Robertson Smith says, his administration 'was never stained by selfish consideration or motives of personal rancour.'

David I. (1134-53), King of Scotland, *b.* in 1084, the youngest son of Malcolm Canmore and Saint Margaret, sister of Edgar Ætheling. He married Matilda, daughter of Waltheof, Earl of Northumbria, and through her became possessed of the earldom of Huntingdon. On the death of his brother, Edgar of Scotland, in 1107, he received the southern district with the title of Earl of Cumbria; in 1124 his brother Alexander I. *d.*, and D. gained the whole kingdom. As an English baron he swore fealty to Matilda, daughter of Henry I., and invaded England on her behalf against Stephen. He was defeated near Northallerton at the 'Battle of the Standard' in 1138. After this he returned to Scotland, and devoted himself to the political and ecclesiastical reform of his kingdom. He founded five bishoprics and several monasteries; Melrose Abbey, Newbattle Abbey, and Holyrood were endowed out of the crown lands. He consolidated his realm and built up the feudal kingdom of Scotland. The country prospered under his rule; he encouraged agriculture, and his charters to landowners took the place of unwritten customs of Celtic tenure. The first idea of a real parliament in Scotland was that of D., tribal authority was swept away, and offences against the king's peace were judged by sheriffs, judges, and other officials specially appointed. Schools were founded for parish churches and burghs in addition to monastic schools, and during his reign the country became orderly and peaceful.

David II. (1329-1371), King of Scotland, *b.* at Dunfermline in 1324, son of King Robert Bruce and Elizabeth de Burgh. He succeeded to the throne in 1329, and was crowned at Scone in 1331. He had been married in 1328 to Joanna, daughter of Edward II. of England. The victory of Edward III. and Edward Balliol, the pretender to the Scottish throne, at Halidon Hill in 1333, drove D. and his queen to flee to France. He returned in 1341, and in the interests of France invaded England in the absence of the army in France, but was defeated and taken prisoner at Neville's Cross. He remained a prisoner in England for eleven years.

By the treaty of Berwick the Scots undertook to pay 100,000 marks as ransom, but the country was too poor to pay the sum, and the king was allowed to return. He secretly offered to treat with Edward III. on the basis of making him or his son successor to the Scottish crown. The nomination of the Duke of Clarence was refused by the Scottish parliament, but D. continued secretly making arrangements with Edward. He died in Edinburgh in 1371, and was succeeded by his nephew, Robert II.

David, St., Bishop of Menevia and patron saint of Wales. The tenth century *Annales Cambriae* record him as having died c. 601. There is also record of his having presided at two Welsh synods. These meagre historical facts have formed the basis of a wealth of legend. St. D.'s Day is March 1.

David, Ferdinand (1810-73), a German violinist and composer, *b.* at Hamburg. He was a pupil of Spohr, and from 1836 to 1873 was the leader of the band at the Gewandhaus, Leipzig. He taught at the Leipzig conservatorium, and Joachim and Wilhelm were among his pupils. His compositions include concertos, and arrangements for the violin, and an excellent violin instruction book.

David, Gerard (c. 1450-1532), a Flemish painter, the last greater painter of the Bruges school. Among his many famous and beautiful pictures are the great altar-pieces, of which a fine example, 'The Marriage of St. Catherine,' is in the National Gallery, London, and the triptych of the 'Madonna Enthroned,' Brignole-Sale collection, Genoa. The 'Transfiguration' is one of the few still remaining in Bruges.

David, Jacques Louis (1748-1825), a Fr. painter, *b.* at Paris. His earliest instruction was obtained from his uncle, Boucher; afterwards he studied under Vien. His first ambition was to obtain the Prix de Rome, but it was not till after he had made several attempts that he was successful, gaining it in 1774. Then he followed his master, Vien, to Rome, where he spent six years, chiefly copying the antique and studying the old masters. When he came back to France, his 'Belesarius' secured his admission to the Academy. At the time of the Revolution he became an enthusiastic representative for Paris in the Convention, and he was also made a member of the Committee of Public Safety. After Robespierre's death he was twice imprisoned and in danger of his life. In 1804 Napoleon appointed him court painter, and made him commander of the Legion

of Honour, but when the Bourbons were reinstated he was banished as a regicide to Brussels, where he remained till his death. There are twenty-four of his pictures in the Louvre, his best known being 'Napoleon on Mount St. Bernard,' 'Oath of the Horatii,' 'Cupid and Psyche,' etc.

David, Pierre Jean (1789-1856), a Fr. sculptor, known as David d'Angers, b. at Angers, of extremely poor parents. Overcoming family opposition, he went to Paris, and by hard work gained a prize at the École des Beaux Arts and, in 1811, the Prix de Rome; he stayed five years in Rome, studying Canova. He became famous through his busts and medallions. His chief works are a monument to the Greek liberator, Botzaris, the pediment of the Pantheon in Paris and the statue of 'Philopœmen,' now in the Louvre.

David's, St., the most westerly cape in Wales, jutting out into St. George's Channel, and forming part of the county of Pembroke.

Davids, Thomas William (1816-84), a Welsh ecclesiastical historian. Author of *Annals of Evangelical Non-conformity in the County of Essex*, and an extensive contributor to Smith's *Dictionary of Christian Biography*.

Davids, Thomas William Rhys (1843-1922), an English Oriental scholar. He was the principal English authority on Buddhism and Buddhist literature. Among his works are: *Buddhism*, 1889; *Buddhist Sutras*, 1881; *Sacred Books of the Buddhist*, 1889; *Buddhist India*, etc.

Davidson, Andrew Bruce (1831-1902), a Scottish divine and theologian, b. at Kirkhill. In 1865 he was made professor of Oriental languages and was one of the O.T. revisers of the A.V. of the Bible. He published various works on Hebrew grammar, syntax, etc.

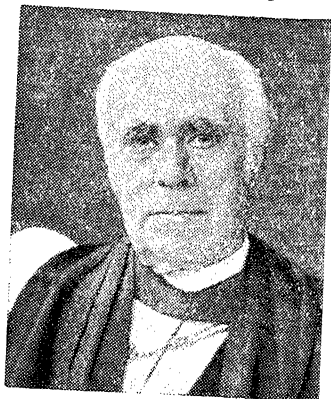
Davidson, George (1825-1911), astronomer, b. at Nottingham. When still a boy he went to America, and in 1845 joined the U.S.A. Coast Survey. He also engaged in surveying work from Maine to Texas and on the Pacific coast. He was given the command of several astronomical expeditions, and his name is connected with the invention of many astronomical instruments.

Davidson, John (1857-1909), a British poet, dramatist, and writer, b. at Barrhead, Renfrew, Scotland; was a master in Scottish schools, was also in business, and in 1890 came to London. His early poetical plays, *Bruce*, 1886; *Smith: a Tragi-Farce*, 1888; *Scaramouch in Nazos*, 1889, attracted no attention, nor did the strange example of his original genius,

the romance *Perfervid*, 1890. His first success was in *Fleet Street Eclogues*, 1893 (2nd series, 1895, followed by *Ballads and Songs*, 1895, 1896, and 1898. His novels of this period include *Baptist Lake*, 1894 and *Earl Lavender*, 1895. He adapted Coppée's *Pour La Couronne* to Mr. Forbes Robertson (as he then was) and Mrs. Patrick Campbell in 1896, and wrote other literary, poetical plays, such as *Godfrida*, 1898, and *The Theocrat*, 1906. His satirical and didactic works include *The Testaments of a Viviselector*, of a *Man Forbid*, 1901, and of an *Empire Builder*, 1902. His last book of poems, *Holiday and other Poems* was published in 1906, *Mammon and His Message*, 1908. He was drowned near Penzance under mysterious circumstances pointing to suicide.

Davidson, Randall Thomas, Lord (1848-1930), ninety-sixth Archbishop of Canterbury, b. at Edinburgh; educated at Harrow and Trinity College, Oxford; ordained 1874, and was domestic chaplain to Archbishop Tait, whose daughter, Edith, he married in 1878. In 1882 he was made Dean of Windsor and domestic chaplain to the late Queen Victoria. He was Bishop of Rochester, 1891, of Winchester, 1895, and succeeded Archbishop Temple of Canterbury, 1903. He was president of the Pan-Anglican Congress, 1908, and the subsequent Lambeth conference, and crowned King George V., 1911. He will be remembered for his practical conception of the great opportunity offered to the Anglican Communion in the Empire. His Western Canada Fund has had a marked effect on the religious life of the prairie provinces. In the Great War he supported the national cause from a belief in its justice, but he was never betrayed into any wild approval of war as such. Rather did he occupy himself with the promotion of that spiritual renewal which the strain of the times seemed to demand. He established important committees to deal with intellectual problems, with worship, with social questions and with church organisations. As a result of these and similar activities, 'The Life and Liberty' movement came into existence as a focus for the younger men of all schools of thought, and, with this movement, came the Enabling and Constitution Act, which he piloted through the House of Lords, and under which the Church Assembly and its subordinate councils were set up. The creation of the Assembly provided him, in his later years, with a function and opportunity exactly suited to his temperament and gifts; and under his guidance legislation

embodying sound practical reforms was presented to Parliament. As regards Rome, he regarded any real *rapprochement* between Canterbury and the Vatican as outside practical politics. The Lambeth Conference of 1920, encouraged inquiry into the possibilities of religious reunion, and it was argued by some that reunion must begin with a movement towards reunion with the Rom. Church; but in the ensuing 'conversations' at Malines with Cardinal Mercier, he adroitly denied to the discussions the character of negotiations and the essential obstacles to such reunion remained unassailed. Yet, if these 'conversations' achieved no practical



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LORD DAVIDSON

result, D.'s vigilant interest in all that concerned the Orthodox Churches not only drew those churches closer to the Anglican Communion, but also brought them into contact with other forms of European Christianity. D. was recognised as the champion of Eastern Christians, whether the oppressor was Bolshevik or Turk. His view of the relation of Christianity to world affairs was never narrowly ecclesiastical, as was shown by his preaching at Geneva on the eve of the Third Assembly of the League of Nations. It was, perhaps, as a legislator and as a Parliamentarian that the church missed him most, and in the House of Lords he found the calm and judicial atmosphere in which he liked to discuss grave questions. His last years brought severe disappointments; his efforts of many years to solve, by settlement, the difficult 'religious problem' in

elementary education were at length nullified by ecclesiastical factions hotly opposed to what they conceived to be the 'surrender' of church schools. A still greater disappointment came, with the rejection by the House of Commons of the 1927 and 1928 Prayer Book Measures; for the hopes he had reposed in the authorisation of an alternative Prayer book had increased with the labour he had bestowed on its preparation; but it would seem probable that, like Cranmer, he had excessive faith in a new Prayer Book as a means of composing differences and restoring discipline within the church. Soon after the second defeat of the Prayer Book measure in 1928 he resigned, his retirement being, however, prompted solely by his sense of duty to the church. The King bestowed a barony upon him, an honour almost without precedent in the instance of one who had been a spiritual peer. He wrote the *Life of Archbishop Tait* with Canon W. Benham, 1891, and edited the *History of the Lambeth Conferences*, 1889.

Davidson, Samuel (1807-98), an Irish biblical scholar. He accepted the chair of biblical criticism and Oriental languages at Independent College, Manchester. The advanced views of his *Interpretation of the Bible*, an introduction to the text of the O.T., caused his resignation in 1857. His works dealing with biblical criticism include: *Introductions to the N.T.*, 1851, to the O.T., 1862; *The Canon of the Bible*, 1877, and he translated Fürst's edition of Buxtorf's great *Hebrew Lexicon*. He was one of the O.T. revisers of the A.V. of the Bible.

Davidson, Thomas (1838-70), b. near Jedburgh. He was known as 'the Scottish Probationer,' and though a licensed preacher of the United Presbyterian Church, he never held a living. He was a poet and author of the popular students' song, *Yang-tsi-Kiang*; he also wrote *The Auld Ashe Tree*, and *Myspie's Den*. See John Brown, *Life of a Scottish Probationer*, 1877.

Davidson, Thomas (1840-1900), a Scottish-American educationist, b. at Old Deer, Banff; went to Canada and later to the U.S.A.; for many years he was a well-known lecturer and teacher on philosophy, education, and kindred subjects. His published works are numerous, chiefly on education, from the historical side. They include: *A History of Education*, 1900; *Aristotle and Ancient Educational Ideals*, 1892; and *Rousseau and Education according to Nature*, 1898.

Davies, Arthur B. (1862-1928).

American 'modernist' painter, trained under Dwight Williams and at the Art Institute, Chicago. Exhibited at special displays in many places in the U.S.A. His 'Spring's Renewal' and 'The Breath of Life' were first shown in New York, and stamped him as a notable adherent of the 'Romantic School.' 'The Girdle of Ares,' which was bought by the Metropolitan Museum of Arts some sixteen years ago, was first exhibited in Philadelphia; and thereafter other notable pictures were 'Visions of the Sea' and 'Children of Yesteryear,' the latter of which is now in the Brooklyn Museum. In 1916, D. was awarded the first W. A. Clark prize and the Corcoran medal. In more recent years he temporarily deserted his earlier romantic or imaginative style for the sake of modernity, especially the cubist fashion, the chief of his paintings in this style being 'The Great Mother.' His reversion to the imaginative style was marked by a more obviously realistic tendency.

Davies, Ben (b. 1858), a Welsh tenor, b. at Pontardawe, near Swansea. He started life in trade, then went to London to study at the Royal Academy of Music. He attracted attention first by singing in light operas, and especially in *Dorothy*. For some years he was a member of the Carl Rosa Company, and has sung in both English and Italian operas. Leaving the stage he took to oratorio and concert singing, and was for many years the leading English tenor.

Davies, Fanny, an English pianist, b. in Guernsey. She went to Leipzig to study music, and became a pupil of Reinecke and also of Oscar Paul. While staying at Frankfurt she studied with Madame Clara Schumann. Played at all the great European festivals accompanied Joachim, and was for many years one of London's popular favourites.

Davies, Hubert Henry (1876-1917), Eng. playwright; b. at Woodley, Cheshire. Educated at private schools. Went, 1893, to San Francisco, became journalist and writer of sketches. Returned to England, 1901; produced plays in London: *Mrs. Gorrings's Necklace*, 1903; *Cousin Kate*, 1903; *Cynthia* 1904, *Captain Drew on Leave*, 1905; *The Mollusc*, 1907; *Lady Epping's Law-suit*, 1908; *Bevis*, 1909; *A Single Man*, 1910; *Doormats*, 1912; *Outcast*, 1914. Work as hosp.-orderly in France broke his health. He was recuperating at Robin Hood's Bay, where his overcoat and stick were found near the cliff edge, Aug. 17, 1917. He was never seen again.

Davies, Sir Henry Walford, organist,

b. 1869, Oswestry, Salop; youngest son of John Whitridge Davies. Chorister, St. George's Chapel, Windsor, 1882; assistant organist to Sir Walter Parratt, 1885-90. Studied Royal College of Music, 1890-94; pupil of Parry, Rockstro, and Stanford. Organist St. Anne's, Soho, 1890-91; Christ Church, Hampstead, 1891-98. Mus. D., Cambridge, 1898. Organist, Temple Church, 1898-1919. Knighted 1922. Organist, St. George's Chapel, Windsor, since 1927.

Davies (or Davis), Sir John (1569-1626), an English poet and lawyer, b. at Tisbury, Wiltshire. He was educated at Oxford (1585), and called to the Bar in 1595. He seems to have enjoyed a reputation for wit, and wrote many epigrams as well as poems. James I. took him into favour, and made him Solicitor-General of Ireland in 1603, and three years later Attorney-General, when he was created Serjeant-at-Arms. His energy and zeal for the Protestant religion accomplished some good work. He was appointed Lord Chief Justice shortly before his sudden death. In conjunction with Sir Robert Cotton he founded the Society of Antiquaries. His best known works are the poems *Orchestra*, 1596, and *Nosce Teipsum*, 1599. His works were edited by Dr. A. B. Grosart (1869-1876). He must not be confused with John Davis of Hereford (c. 1565-1618), the poet, whose works were also collected by Dr. Grosart (1873).

Davies, Sir Louis Henry (1845-1924), Canadian jurist and Liberal statesman; b. in Prince Edward Is.; son of Hon. Benjamin D. Educated Central Academy, and Prince of Wales College, Charlottetown. Called to Bar, 1867. Solicitor-General, 1869, 1871-72. Leader of opposition in Legislative Assembly, 1873. Leading counsel for tenantry before P.E.I. Land Commission, 1875. Premier and Attorney-General, Prince Edward Is. 1876-79. Elected to Dominion Parliament 1882. Minister of Marine and Fisheries, 1896-1901. K.C.M.G., 1897. On Comm. at Quebec, 1898-99, to settle questions with U.S.A. In London on Behring Sea business, 1899 and 1900. Judge, Canadian Supreme Court, 1901; Chief Justice, 1918. P.C., 1919. Died at Ottawa.

Davies, Mary, an English soprano, b. in London. Of Welsh parentage, she was trained as a public singer, and in 1880 created the part of Margaret in the English version of Berlioz's *Faust*. Took part in most of the English musical festivals, and for many years sang at the London ballad concerts as their leading soprano.

Davies, Sarah Emily (1830-1921),

Eng. feminist pioneer; *b.* 1830, at Southampton, daughter of Rev. J. Davies, D.D. Educated at home. Secretary of Committee, 1864, for obtaining opening of Cambridge local exams. to girls—succeeded, 1865. Agitated for London University degrees for women—succeeded, 1874. Hon. sec. of movement (1867) inaugurating Hitchin College; rehoused at Gorton, 1873—Miss D. mistress two years. Member London School Board, 1870–73. Died, Belsize Park, Hampstead.

Davies, Thomas Witton (1851–1923), Hebrew scholar educated at University College, London, where he won the first prize in logic and philosophy, and also in Hebrew. In 1897 he was appointed lecturer in Arabic and Syriac at University College, Nottingham; and in 1899 professor of Hebrew and O.T. literature at the Baptist College, Bangor; Professor of Semitic languages in N. Wales Univ. till 1921. Amongst his numerous publications are: *Oriental Studies in Great Britain, The Scriptures of the Old Testament, Welsh Political and Educational Leaders, and Outstanding Literary and Human Factors in Life*.

Davies, William Henry, British poet; *b.* 1871, Newport, Mon.; Welsh parentage. Served apprenticeship to picture-frame making. Went to America; for six years lived chiefly as tramp, visiting England in cattle-boats. Peddled lace, pins, etc., on return to Eng. Poetry began with *The Soul's Destroyer*, 1907. Collected eds., 1916 and 1924. Prose includes *Autobiography of a Super-Tramp*, 1908; *A Weak Woman* (novel), 1911; *Adventures of Johnny Walker, Tramp*, 1926; *Dancing Mad*, 1927.

Davies, W. D., generally known as 'Karri Davies', *b.* at Karridale, Australia, and went to S. Africa. He came into public notice during the agitation of the Uitlanders in the Transvaal against the Kruger régime, and was a member of the Transvaal Reform Committee; he was arrested with other members at the failure of the Jameson Raid in 1897. Sentenced to two years' imprisonment and a heavy fine, he with Wools-Sampson alone refused to appeal from the sentences and was retained on the liberation of the other prisoners. He fought in the S. African War (1899–1902), was wounded at Elandslaagte, and was present at the relief of Mafeking.

Davila, Enrico Caterino (1576–1631), *b.* near Padua; his father, a distinguished Cypriot, had fled to France when the Turks conquered Cyprus. From being a page at the Fr. court he rose to the position of one of the

leading men of Venice, as governor of Dalmatia and Candia. He wrote a famous history of the Civil Wars of France. He was assassinated on his way to Crema.

Da Vinci, see LEONARDO DA VINCI.

Davis Cup, presented by Mr. Dwight F. Davis of St. Louis in 1900 as 'a sort of International Challenge Cup.' Conditions for D. C. were submitted by United States N.L.T.A. to the Lawn Tennis Association in London, on Jan. 16th, 1900. The regulations have since been revised and the competition is now called 'The International Lawn Tennis Championship.' It is a knock-out men's tennis tournament between nations. Singles and doubles are played, ties are drawn for, and the Challenge Tie is played in the country of the Champion Nation. Australia has won it twice, Australasia four times, Great Britain five times, France four times, and the U.S.A. ten times during the years 1900 to 1930. France is the present (1930) holder.

Davis, Cushman Kellogg (1838–1900), an American political leader and lawyer, served during Civil War in the Federal Volunteers; became prominent in state politics as a Republican; from 1874–76 he was Governor of Minnesota; from 1887 U.S. Senator. Had great influence on American foreign policy, and signed the Treaty of Paris after the Spanish-American War.

Davis, Henry William Carless (1874–1923), Eng. historian; Educated at Weymouth College and went to Balliol College, Oxford, as Brackenbury History Scholar; Won Jenkyns exhibition in his fourth year. Deputy-professor, Univ. College, N. Wales, 1896–97. Lecturer New College 1897–99; Balliol, from 1899. An enthusiast for mediæval times. Contributed to the *English Historical Review* and *Cambridge Modern History*. Published *Balliol College* (history), 1899; *Charlemagne*, 1900; *England under the Normans and Angevins*, 1905; *Mediæval Europe*, 1911. When the War broke out, he was in the midst of editing a Calendar of Charters. He took up work in the War Trade Intelligence Dept., and was made C.B.E. in 1918. Became Regius Professor of Modern History, Oxford, 1925; was editor of the *Twentieth Century Dictionary of National Biography*.

Davis, Henry Winter (1817–65), American political leader, *b.* at Annapolis, Indiana. Served in the National House of Representatives as a Know Nothing, 1855–56. After Lincoln's election he became a Republican, and opposed Lincoln's plan for the reconstruction of the Southern

States, and issued with Benjamin Wade of Ohio the 'Wade-Davis Manifesto,' which denounced Lincoln. In 1861 declined nomination to the vice-presidency. Chairman of committee of foreign affairs 1863-65. Published *The War of Ormuzd and Ahriman in the Nineteenth Century* (1853) against the slave-holders.

Davis, James John, b. Tredegar, South Wales, Oct. 27, 1873, went to the U.S.A. with his parents in 1881. He was educated in the public schools of Pennsylvania until he was eleven years old, when he began work as a puddler's assistant in an iron mill in Sharon, Pennsylvania, and later in Pittsburgh. At sixteen he moved to Elwood, Indiana, and worked in steel and tin plate mills there. He was elected City Clerk of Elwood 1898-1902 and Recorder of Madison County Indiana from 1903 to 1907. He then became Director-General of the fraternal order of Moose and increased its membership from 247 to over 600,000. President Harding named him in 1921 to the Cabinet post of Secretary of Labour, and he continued in this position under both Presidents Coolidge and Hoover, resigning in the winter of 1930 after he had been elected U.S. Senator from Pennsylvania.

Davis, Jefferson (1808-89), only President of the Confederate States during the American Civil War, b. June 3, 1808, at Fairview, Kentucky. Thus, by one of the strange vagaries of fate, he was b. just a year before and in the same section of Kentucky where saw the light Abraham Lincoln, who was to be the President to preserve the union which Davis tried to break. Davis's father Samuel, was of Welsh extraction. After attending schools in Kentucky and Mississippi, he graduated from old Transylvania College in his native state in 1824, and then attended the U.S. Military Academy, from which he graduated in 1828. Here again fate played a strange trick, for there were attending the Academy when Davis was there Robert E. Lee, Albert Sydney Johnston and Joseph E. Johnston, all of whom were to be Confederate generals in the after days. Davis remained in the U.S. army for seven years, and distinguished himself as a young officer in the Black Hawk Indian war of 1833. During this campaign he became subject to an illness which left him a martyr to neuralgia for the rest of his life. Marrying a daughter of Colonel, afterwards General and President Zachary Taylor, he bought a cotton plantation in Mississippi, where he

made a comfortable fortune. He lost his first wife after three months marital happiness. For a long time thereafter he devoted himself to his books and his plantation. As he treated his own slaves kindly and gave them a large measure of self government, he became a convinced supporter of African slavery, really believing that all slave-holders treated their human property in as benevolent a manner as he did. He was elected to a seat in the National House of Representatives in 1845, but on the outbreak of the war with Mexico resigned this post and went to battle as Colonel of the First Mississippi Infantry in the army led by his father-in-law. He served with distinction at the Battle of Monterey, and on Feb. 22, 1847, became something like a national hero because he saved the day at the Battle of Buena Vista. In 1847 he was elected to the U.S.A. Senate, and was made chairman of its committee on military affairs. He 'ran' for Governor of Mississippi in 1851, but was defeated. President Franklin Pierce made him Secretary for War in his Cabinet in 1853. Davis energetically improved the army, and pushed the construction of coast defences and the survey of the far west for future railway lines. Once more elected to the Senate in 1857, he became the leader of the Southern democrats. He was one of the most ardent defenders of slavery and state rights, and thus came into conflict with Stephen Douglas, one of the great leaders of northern Democracy. The election of Lincoln as President in the fateful campaign in 1860 caused Davis to burn his bridges. In the Senate he passionately asserted the right of the southern slave-holding states to secede from the union and form a separate nation. When Mississippi formally seceded and joined the Confederacy, Davis delivered a moving farewell speech in the Senate on Jan. 21, 1861. He fondly hoped to lead Mississippi troops in the coming armed conflict, but to his dismay the Southern Congress on Feb. 9, 1861, chose him as provisional President of the Confederacy. He was inaugurated at Montgomery, Alabama, in that same month. In a later election by the people he was again chosen President and again inaugurated, this time at Richmond, Virginia, Feb. 22, 1862. He started out with the hope that war might be averted by getting the national Gov. to withdraw its troops from the south, but when this proved abortive, threw himself into the task of war-making. At the

same time, he realised the odds against him. The North had the preponderance in money, in men, in factories. He countered with conscription. He succeeded in getting a fair supply of arms and munitions. He improvised a navy which gave a good account of itself. In the beginning, too, the South was favoured by the brilliance of its military commanders. But the first great victories were soon followed by serious defeats. Gettysburg disappointed the hopes of invading the North. Vicksburg marked the beginning of the cleavage of the South by the Union forces. D. blundered by retaining the services of generals who had been shown to be unfit for their task. Press and public began to turn against him, and General Lee might have been able to seize supreme power if loyalty to the Gov. had not been his first and his last word. When Richmond, the capital, fell into Union hands, D. moved first to Danville, Virginia, thence to Greensboro, North Carolina, and was finally captured near Irwinsville Georgia, May 10, 1865. Manacled and harshly treated, he was confined in Fortress Monroe, Virginia. He was threatened with trial for treason, but was finally admitted to bail in May 1867 and allowed to go to Canada. He benefited from the general amnesty of 1868 and returned to Belvoir, Mississippi, where he spent the rest of his life quietly, refusing to take any part in politics. He *d.* suddenly in New Orleans, Dec. 6, 1889. He wrote several books, one of which was *The Rise and Fall of the Confederate Government*. The harsh treatment to which he was subjected by his captors did much to restore him to favour among his own people. But he was not of the stuff of which popular heroes are made. Tall and thin of figure, he was grave, dignified and cold of manner. See Mrs. Davis' *Jefferson Davis*, 1890; lives by F. H. Alfriend, 1868, and E. A. Pollard, 1869; W. E. Dodd, 1907. See also UNITED STATES.—*History*.

Davis, John (1550–1605), a celebrated navigator, considered the father of Arctic discovery. Was *b.* in Strake Gabriel, near Dartmouth, Devon. In his early days he made various expeditions around Greenland, and after suffering many reverses of fortune succeeded in pushing through the Strait which bears his name to Baffin Bay. His next voyages were in the South Seas. In 1597 he took a Dutch vessel to the East Indies, and had trouble in Madagascar. He then undertook a short expedition as major of the fleet. He

wrote *The World's Hydrographical Description*, and *The Seaman's Secrets*.

Davis, Sir John Francis (1795–1890), an English diplomatist. After some years of service in diplomacy he was appointed governor of Hong-Kong in 1844, but he got into trouble with the government owing to his arbitrary action in seizing the Bogue forts at a time when there was disaffection among the Chinese. He published three books, *Chinese Novels Translated*, 1822; *The Fortunate Union*, 1829; and *The Chinese*, 1836.

Davis, John William, American statesman and diplomat. *b.* 1873, at Clarksburg, W. Va.; son of John J. Davis. Graduated at Washington and Lee University, Va., Assistant professor of law at his University, 1896–97, in practice at Clarksburg, 1897–1913. Member of W. Virginia House of Delegates, 1899. Delegate, Democratic National Convention, St. Louis, 1904. Member of 62nd and 63rd Congresses (1911–15) for 1st W. Virginia district: one of the managers in the impeachment of Judge Archbald, Dec. 1912. Resigned to become U.S. Solicitor-General, 1913, held that post till 1918. Counsellor for American Red Cross, 1913–18. Member of American delegation for conference with Germans on treatment and exchange of prisoners of war, Berne, Sept. 1918. Succeeded Walter Hines Page as Ambassador to Great Britain, 1918–21. On return to U.S.A., became partner in a New York law firm. Selected as candidate for U.S. Presidency at the Democratic Convention, New York, July 1924; heavily defeated by Calvin Coolidge. His manner, despite all effort, was too cool and lawyer-like to suit the masses of his own party.

Davis, Mortimer Barnett (1866–1928), Canadian financier. President of the Imperial Tobacco Co. of Canada and Chairman of the Canadian Industrial Alcohol Co., besides being a director of the Royal Bank of Canada and a member of several other great commercial concerns in the Dominion. Was often styled 'the tobacco king of Canada.' Gave munificent amounts to philanthropic concerns.

Davis, Richard Harding (1864–1916), American novelist and journalist; *b.* April 18, 1864, in Philadelphia, son of L. Clarke Davis, editor of the *Public Ledger*, and his wife Rebecca Harding D., novelist. He was educated at Lehigh and Johns Hopkins universities. In 1889 he was in England as correspondent of the *Philadelphia Evening Telegraph*. He was afterwards on the New York *Evening Sun* and *Harper's Weekly*. Through-

out the Spanish-American War he acted as war correspondent. He served in the same capacity during the Boer War in S. Africa. He wrote several books relating to these campaigns, as well as a large number of novels; also a play entitled *Dictator*, produced at the Comedy Theatre, London, May 1905. In 1914 he was in Mexico as war correspondent of the New York *Tribune*; and soon afterwards he went to Belgium, where he was arrested by the Germans. He wrote *With the Allies* and *Somewhere in France*, 1915. Died at Mt. Kisco, N.Y., April 11, 1916.

Davis, Thomas Osborne (1814-45), an Irish poet and journalist. He attached himself to the party of Daniel O'Connell and worked on the committee of the Repeal Association, 1841. In conjunction with J. B. Dillon and Charles Gavan Duffy, he started the weekly paper *The Nation*, and his best work appeared in this, comprising some fine lyrics such as the *Lament for Owen Roe O'Neill: The Battle of Fontenoy*, etc., and historical sketches. Trouble arose between O'Connell and the 'Young Ireland' party, as they were called, and D. was attacked on the plea that he was anti-Catholic, but he retained a strong influence on his party until his death. See Sir C. Gavan Duffy, *Thomas Davis*, 1896.

Davis, William Morris, geographer and geologist (b. 1850), son of Edward Morris, b. in Philadelphia. Educated at Harvard University, he taught geology and geography there in 1876 and 1878 respectively. His principal publications are: *Elementary Meteorology*, *Physical Geography*, 1899; *Elementary Physical Geography*, 1902; *The Triassic Formation of Connecticut*; *Geographical Essays*, 1909; *A Handbook on Northern France*, 1918; and numerous articles in scientific journals.

Davison, William (1541-1608), secretary to Queen Elizabeth. Of Scottish birth, and a friend of Robert Dudley, he was employed on various diplomatic missions by the queen. He became a member of parliament, a Privy Councillor, and in 1586 assistant to the queen's secretary, Walsingham. He brought the warrant for the execution of Mary, Queen of Scots, for Elizabeth's signature and bore the brunt of the queen's displeasure when it was carried out, being heavily fined and imprisoned. In 1589 he was released but not restored to favour, and he retired to Stepney, where he died.

Davis Strait separates N. America and Greenland, joining Baffin Bay with the Atlantic Ocean. The name is derived from John Davis, who was

the first to explore it. It is from 16 to 180 m. across at the narrowest point, and the greatest depth is about 950 fathoms.

Davit, on shipboard, is a curve iron column projecting over the stern or sides. Ds. are generally arranged in pairs and are used as cranes by which to hoist or lower boats.

Davitt, Michael (1846-1906), an Irish Nationalist politician, b. in co. Mayo. His father having been evicted in 1851, the boy started life in a Lancashire cotton-mill, but in 1857 a machinery accident resulted in the loss of his right arm. In 1865 he joined the Fenians, and five years later was arrested on the charge of importing fire-arms into Ireland, and was sentenced to fifteen years' penal servitude. Released after seven years he returned to Ireland in 1879, and helped Parnell to start the Land League, with the result that he was re-arrested, but released on ticket-of-leave again in 1882, when he was elected to parliament as Nationalist member for Meath, but as a convict was not allowed to sit. He was one of the respondents before the Parnell Commission (1888-90) and spoke for five days in his defence. He was elected to parliament on three subsequent occasions, but never sat for any length of time. He wrote a good deal and was bitterly anti-Eng. and anti-clerical.

Davos, a mountain valley in the Swiss canton of the Grisons, Switzerland. Its two principal villages are **Davos-Platz** and **Davos-Dorf** (with 9730, mainly Protestant, inhabitants and 30,000 visitors annually), which are 5015 ft. above the level of the sea. They are situated 40 m. E. of Coire and 18 m. from Sâs in the Lower Engadine. The valley is sheltered from the cold winds and enjoys brilliant sunshine, and these facts being noted by Dr. Spengler in 1865, he advocated the place as suitable for consumptive patients, and the valley has since become a famous winter resort for those suffering from the disease. There are many hotels and sanatoria, and the winter sports attract an increasing number of visitors.

Davout, Louis Nicolas, Duke of Auerstädt and Prince of Eckmühl (also Davout and Davoust) (1770-1823), a marshal of Fr. and one of the most brilliant of Napoleon's generals; b. at Annoux on May 10. He went through the Rhine campaigns of 1794-95, and on the expedition to Egypt with Bonaparte. After the Marengo campaign he became general of division, and when Napoleon became emperor was created a marshal of Fr. and was

in command of the third corps of the Grande Armée at Austerlitz, and with a single corps won the victory of Auerstädt against the main Prussian army. He was made Duke of Auerstädt in 1808. After being governor of Poland he took part in the war with Austria (1809), and was made Prince of Eckmühl. He organised the army for the Russian campaign, throughout which he commanded the first corps, and in 1813 he sustained the siege of Hamburg. He retired on the first restoration, joining Napoleon on his return from Elba, when he became minister of war, and was left in command of Paris after Waterloo. His stern discipline made the troops he commanded the most trustworthy in Napoleon's armies, and his severity and extortion in conquered territories were in execution of the emperor's orders. At the second restoration he was deprived of all his titles, but in 1817 they were restored to him.

Davy, Sir Humphry (1778-1820), b. at Penzance, Cornwall. His father was a woodcarver. He was educated at Truro, studied medicine



SIR HUMPHRY DAVY

and set up as a doctor, devoting his leisure to chemical research. The results of his experiments were published by Dr. Beddoes, who made him superintendent of the Pneumatic Institute. This led to his appointment to the post of assistant lecturer of chemistry to the Royal Institution, London, where his brilliant scientific success, his versatility and originality brought him recognition and fame, which spread abroad. In 1807 he

delivered a remarkable Bakerian lecture on 'Some Chemical Agencies of Electricity,' embodying the results of experiments he had been making for some time. It revolutionised the scientific world, and Fr. bestowed on him the Napoleon prize of 3000 francs. He planned the ventilation of the House of Lords, and, in 1812, was knighted by the Prince Regent; the same year marrying Mrs. Apreece, heiress and daughter of Charles Kerr of Kelso. With Faraday he visited the Continent, where he met contemporary leading scientists, Ampère, Cuvier, Chevreuil, and Humboldt. On his return to Eng. his investigations into the causes of fire damp resulted in the invention of the miners' safety lamp. Numerous honours followed. He was made baronet and president of the Royal Society. Failing health necessitated his leaving Eng., and he d. at Geneva. See Lives by Dr. Paris and his (Davy's) brother. Writings published 1839-40 in 9 vols.

Davy, John (1763-1824), an Eng. musician, b. near Exeter, and d. in London. He wrote many songs, the best known of which is *The Bay of Biscay*.

Davy Jones, the sailor's name for the evil spirit of the sea, the sailor's devil, whose 'locker' is the ocean, the grave of those who die at sea.

Davy Lamp, a form of safety lamp, used especially in mines, which will allow an illuminant to be burnt in it without danger of explosion from the explosive gases often generated in the passages of the mine. The principle of these lamps is that sufficient air should be allowed to enter to allow the light to burn, while at the same time the flame or gases of combustion should not escape at a temperature which would cause ignition of the explosive gases in the mine. Sir Humphry Davy in 1816 invented the lamp which has since then borne his name. It consists of a cylindrical lamp, to which air is admitted at the bottom and covered by a cage of iron wire gauze, the mesh of which was at that time of 789 apertures to the square inch. This standard has been reduced. The lamp is in two parts, locked together so that once lighted the gauze cannot be removed. Many improved lamps have been made on this system, especially to prevent the inflammable gases, travelling at high velocities, being forced back into the lamp.

Dawes, Charles Gates, American brigadier-general of engineers and financial expert; b. Aug. 27, 1865, at Marietta, Ohio; son of General Rufus R. Dawes. Graduated Marietta College, 1884, LL.B., Cincinnati,

1886. Practised at Lincoln, Neb., 1887-94; removed to Illinois. Comptroller of the Currency, 1897-1902. In Great War, major of engineers in Fr. from 1917, became member of Allied Purchasing Board, in 1918 brigadier-general. Returned to America 1919; director of the Bureau of the Budget, 1921-22. Appointed by Reparations Commission to preside over committee for examining Germany's capacity for reparation payments, which sat in Paris Jan.-April 1924, and whose report of April 19 submitted so-called DAWES PLAN (q.v.). In 1924, elected Vice-President U.S.A., for term 1925-29. Ambassador to the Court of St. James, 1929. Published *A Journal of the Great War* (1930), being a record of his activities as president of the Purchasing Board of the American Expeditionary Force in Fr. and as representative of the American section on the Military Board of Allied Supply. Its main features, outside its technical interest, is the revelation of the author's great admiration for General Pershing, of whom he had been a close friend since his youth.

Dawes, Henry Laurens (1816-1903), an American lawyer, who became Chairman of the Dawes Indian Commission (Five Civilised Tribes).

Dawes Plan. This was the name given to the scheme evolved by the committee of experts which was set up to investigate the financial conditions in Germany and to settle the amount of money which Ger. could pay as reparation for war damage—such amount to be without prejudice to the balancing of the Ger. budget and the stabilising of Ger. currency. On Oct. 24, 1923, the Ger. gov., forced by severe economic pressure, applied to the Reparation Commission under Act 234 of the Treaty of Versailles for an investigation of Ger. economic resources and her capacity to pay. This application was followed on Nov. 2 by a notification to the effect that for the time being Ger. was unable to pay for deliveries in kind. The application was granted and the Reparation Commission decided on Nov. 30 to appoint two committees: (1) the Dawes Committee to investigate and report as above; (2) the McKenna Committee to enquire into, and report upon, the flight of Ger. capital abroad since the Armistice. The Dawes Committee was presided over by C. G. Dawes, U.S.A., and the other members were: O. D. Young, U.S.A.; R. M. Kindersley and J. C. Stamp, Great Britain; J. Parmentier and E. Allix, Fr.; A. Pirelli and F. Flora, It.; E.

Francois and M. Houtard, Bel. The committee met for the first time in Paris on Jan. 14, 1924, and so expeditiously was its work performed that on April 9 of the same year the report was submitted. This report which obtained world-wide reputation as the D. P., became the basis for the settlement of reparation reached at the London conference on Aug. 16 1914. The gist of the report may be given in these words: 'beyond the fixed annuities which shall be normally 2½ milliard gold marks there will be no longer any other liabilities arising out of the Treaty of Versailles or the World War.' The normal



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annuity of 2½ milliard g. m. was to be obtained from the following sources:

1,250,000,000	from customs duties and consumption taxes.
660,000,000	from the railways.
290,000,000	from the transport tax.
300,000,000	from industry.

2,500,000,000

And the normal annuity was to be reached in the fifth year. The actual payments made were:

		gold marks	
1924-5	.	1,000	millions
1925-6	.	1,220	"
1926-7	.	1,500	"
1927-8	.	1,750	"
1928-9	.	2,500	"

The standard figure was reached on Sept. 1, 1928, and an additional payment became liable after the close of the year 1928-9 calculated on an index of prosperity, based on certain trade returns, budget receipts and

expenditure, etc. In 1930 the D. P. gave way to the Young Plan (*q.v.*) See also REPARATIONS. (See *The History of Reparations*, Bergmann.)

Dawes, William Rutter (1799-1868), an Eng. astronomer, who made a name by his observations and measurements of the double stars; he made an early observation of the dusky ring of Saturn, 1850, and in 1855 won the gold medal of the Astronomical Society. He was a clergyman and worked at his private observatories at Ormskirk, Cranbrook, Wateringbury, near Maidenhead, and Haddenham.

Dawkins, Sir William Boyd (1838-1929), a Welsh geologist and archaeologist. In 1862 he joined the Geological Survey of Great Britain. In 1874 he became professor of geology and palaeontology at Owens College, Manchester. His researches in connection with the cave-dwellers of prehistoric times won him a name in anthropology, and he published the following works: *Cave-hunting*, 1874; *Early Man in Britain*, 1880; *British Pleistocene Mammalia*, 1866-87. He was also connected with surveys for the proposed Channel Tunnel and for the discovery of coal in Kent.

Dawley, an urb. dist. of Eng., in Shropshire, situated on Shropshire Union Canal, and in the Wellington division, 4 m. S.E. of that place. Coal and iron are worked. Pop. 7388.

Dawlish, a tn. and watering-place in co. Devon, Eng., 11 m. from Exeter, a stream called Dawlish water runs through its centre. D. is a great resort for sea-bathers and invalids throughout the year. Pop. 4931.

Dawn, the morning twilight, the period of half-light, when the sky is illuminated by the reflection of the rays of the rising sun on the clouds and dust, etc., suspended in the atmosphere before it rises above the horizon. The maximum vertical depression of the sun was early calculated by astronomers to be 18°. The time the dawn-light lasts is measured by the time the sun takes to pass through an arc of 18°, and varies with the latitude of the observer and declination of the sun, it being at its minimum at the equator and increasing according to the distance from that point, and being longer in summer than in winter. The colours of the sunrise at dawn are not so warm as those of sunset, since the air is clear and there is less diffusion of light rays. The order of dawn colours is deep red, then orange, gold, and clear bright yellow, the reverse order of the sunset colours. The duration of dawn is shorter than of twilight.

Dawson, George (1821-76), an Eng. Nonconformist divine, b. in London.

He entered the ministry as a Baptist, and in 1843 went to Rickmansworth, removing a year later to Mount Zion, Birmingham. His unorthodox views led him to resign, and his followers built the church of the Saviour for him. Here he worked for nearly thirty years attracting a large number of people by his eloquence and freedom of thought. Carlyle and Emerson were numbered among his friends, and contributed to his popularity. He published one or two books of lectures and sermons.

Dawson, George Geoffrey (b. 1874), Eng. journalist. Was private secretary to Viscount Milner (*q.v.*) during the latter's tenure of the post of Governor of Cape Colony and High Commissioner for S. Africa. Editor of the *Johannesburg Star* for five years. Became editor of the *Times* soon after Lord Northcliffe gave up ownership of the paper, retaining the post from 1912 to 1919, and was recalled to the post in 1923, which he still holds (1931). A purist in language and a champion of great causes, he has worthily upheld the traditions of the great national newspaper.

Dawson, George Mercer (1849-1901), a Canadian geologist, b. at Pictou, Nova Scotia, son of Sir J. W. Dawson. He held the post of geologist and naturalist to the N. American boundary commission (1873), served on the staff of the Geological Survey of Canada, becoming director in 1895. He had charge of the Yukon expedition in 1887, and Dawson City is named after him. He was one of the Behring Sea commissioners (1891), and went to Paris on the Arbitration Board. He wrote many scientific papers and reports.

Dawson, Henry (1811-78), an Eng. painter, b. at Hull. With the meagre artistic education of a dozen lessons from Pyne in 1838, D. succeeded in winning a place among Eng. artists by his wonderful skill in painting sky and clouds. In style, he was an ardent follower of Constable.

Dawson, Sir John William (1820-99), a Canadian geologist, b. at Pictou, Nova Scotia. He studied at Edinburgh University, and on settling down to educational work in Nova Scotia undertook a geological survey of the country, publishing his results in *Acadian Geology*, 1855. The same year he became professor of geology and principal of McGill College and University, Montreal, and in 1862 was elected F.R.S., becoming the first president of the Royal Society of Canada. In 1884 he was knighted, and in 1893 was nominated Emeritus principal, professor, and honorary curator of the Redpath Museum. D.

did great service to geology and education. He took a leading part in the movement for the improvement of women's education, and brought the whole school system of the province to a higher level of efficiency. Among his numerous works are: *Archæia*, 1858; *Story of the Earth and Man*, 1872; *Origin of the World*, 1877; *Fossil Men*, 1878; *Egypt and Syria*, 1885; *The Meeting-place of Geology and History*, 1894; *Relics of Primeval Life*, 1897.

Dawson of Penn, Sir Bertrand Edward Dawson, 1st Baron, Court physician, is son of the late Henry Dawson, F.R.I.B.A., of Purley, Surrey. Educated at Univ. College and the London Hospital. B.Sc. 1888; M.B., London, 1890; M.R.C.S., 1890; M.D., London, 1893; F.R.C.P., 1903.

Joined Congregationalists, 1892, and ministered at Highbury Quadrant (London) till 1904. Visited Washington, D.C., as delegate to Methodist Ecumenical Council, 1891. Lecture in America, 1905. Pastor of 1st Presbyterian Church, Newark, N.J. 1912-25. The degree of D.D. was conferred on him by Oberlin College in 1905. Writings include: *A Vision of Souls* (poems), 1884; *The Making of English Poetry*, 1890; *Judith Boldero, a tragic romance*, 1898; *Makers of English Prose*, 1899; *Robert Shenstone* (novel), 1917; *The Autobiography of a Mind*, 1921. Died at Nelson, B.C.

Dawson City, the cap. of the Canadian Yukon dist. and centre of the Klondyke goldfields. The town was founded in 1896 at the time of



THE YUKON AT DAWSON CITY

Physician-extraordinary to King Edward VII., 1907-10; to King George V., 1910-14. Early became known as an authority on gastric affections—wrote *The Diagnosis and Operative Treatment of Diseases of the Stomach*, 1908. During Great War he was captain R.A.M.C. (T.F.), commandant 2nd London General Hospital and consulting physician in Fr. Colonel A.M.S. and hon. member Army Medical Advisory Board, 1918; hon. Major-General, 1919; K.C.V.O., 1911; G.C.V.O., 1917; K.C.M.G., 1919; raised to peerage Feb. 9, 1920; K.C.B., 1926; P.C. June 8, 1929.

Dawson, William James (1854-1928), author, and minister of religion; b. at Towcester, Northants; son of Rev. Wm. James D. Educated at Didsbury College, Manchester; ordained Wesleyan minister, 1875.

the first gold rush, and though partially devastated by fire in 1899 is still a well-established mining city boasting several fine opera house and hotels. It enjoys the services of a fleet of river steamers and telegraphic communication connecting it with the upper and lower Yukon. In spite of the climate, which tends to extremes, wheat, barley, and oats have been successfully cultivated there. The pop., which has been extremely fluctuating, has dwindled from 30,000 in 1898 to 1000 in 1921 owing to the exhaustion of the Klondyke goldfields.

Dax, a tn. in the dept. of Landes, Fr., on the Adour. It has manufactures of pottery and liqueurs, and trades in wine, timber, and agricultural produce. There are fine medicinal springs which have main-

tained a reputation for the cure of rheumatism since the time of the Roms. The name is a corruption of *Acqua*. It contains Rom. remains, castle, and cathedral. Pop. 12,390.

Day (Old Eng. *daeg*. Ger. *tag*), usually means the time during which the sun is above the horizon, the period of light as opposed to darkness. In astronomy it is one rotation of the earth. The sidereal day is the time between two culminations of a star, consistently equal. The solar day, which is measured by the sun, varies slightly, and is longer than the sidereal day, which does not alter. There is a difference of about four minutes, for by the time the sun has made one complete rotation and the earth has come back to the same place relatively, the sun has moved eastwards nearly one degree, which necessitates four minutes longer travelling by the earth. Only four times a year does the sundial and the clock agree. The astronomers' imaginary sun, moving uniformly, regulating the mean time (watch time), the real sun on the meridian giving the apparent time. Day varies with latitude and seasons, to the N. of the equator increasing in summer and decreasing in winter, and *vice versa* to the S. At the equator day and night are nearly equal, for owing to the inclination of the earth's axis to the plane of its orbit the parallel of latitude in which the sun appears to move is continually changing, at the equator alone being bisected. The Gks. counted day from sunset, Roms. from midnight, Babylonians from sunrise, Umbrians from midday.

Day of Atonement (*Yôm Hakkippûrim*, or 'Day of Coverings') is the holiest day in the Jewish year, and is observed with complete rest from all labour, abstinence from all food and drink, in self-examination and penitence. The Yom Kippur is always the tenth day of the seventh month (Tishri), and the fast begins at sunset on the ninth day, lasting until the evening of the tenth.

Day, Francis (1829-89), an Eng. ichthyologist, b. at Maresfield, Sussex, who wrote some standard works on the piscatorial life of India and Great Britain. He became interested in this study while surgeon at Madras. His chief works are: *The Fishes of Malabar*, 1865; *Fishes of India* (2 vols.), 1875-88; *The Fishes of Great Britain and Ireland*, 1880-84.

Day, John (c. 1574-1640), a dramatist, was a native of Norfolk and sizar of Caius College, Cambridge, whence he was expelled for theft. He collaborated successfully

with Dekker, Haughton, and other writers of the period. His best known work is an allegorical masque, *The Parliament of Bees*, in which all the characters are bees. He also wrote a pleasing comedy, *Humour out of Breath*.

Day, Thomas (1748-89), author of *Sandford and Merton*, b. in London, inheriting in early infancy £900 a year, the greater part of his father's estate. He was educated at Charterhouse and Oxford, and was called to the Bar but did not practise. He was eccentric, and educated two girls with the idea of making one his wife, but the experiment failed. With his friend Edgworth he made the acquaintance of Rousseau in Paris. Literature, architecture, politics, and agriculture in turn had his attention. He married Esther Milnes, an heiress. In support of the abolition of the slave trade, he wrote *The Dying Negro*. He was killed whilst taming a colt near Wargrave.

Dayaks, see DYAKS.

Day and Night Breezes, relate to the varying direction and velocity of the wind during the different periods of the twenty-four hours. The heat of the sun reflected from the earth reacts on the surface layer of the atmosphere, the interchange causing surface winds and up-currents. These fluctuations are not so marked over water where the conditions are more uniform. Certain surface winds die down towards sunset owing to the cooling ground which lessens the tendency of the air to rise. The mean direction of the wind does not vary much throughout the twenty-four hours. Most breezes usually tend to veer slightly to the observer's right through the morning and turn back again after sunset. Small pilot balloons are used by meteorological stations to determine the direction and velocity of the wind at different altitudes.

Dayfly, or **Mayfly**, see EPHEMERA.

Daylesford, a bor. and tn. of Australia, situated in Victoria, 26 m. N.E. of Ballarat. Gold is extensively worked in the neighbourhood. Pop. 3328.

Daylight Saving. To William Willott (1856-1915), a Chelsea builder, belongs the credit for the introduction of the daylight saving scheme into Eng., although his suggestions put forth in 1907 were held up to ridicule. In 1916 Ger. instituted a daylight-saving scheme for purposes of light and fuel economy during the War, and this led to the Summer Time Act of Britain being passed on May 17, 1916. On Sunday, May 21, the clocks throughout the country were put on an hour in advance of

Greenwich time for the whole of the summer months, thereby effecting a great economy in time of stress. Other countries throughout Europe followed suit, and America put the scheme to trial in 1917.

Although originally a war measure, daylight saving was considered to have so many advantages that by a series of Acts of Parliament it was continued in Eng., Colonel Lambert Ward being its earnest champion in the House. The Royal Assent was given to the Summer Time Act, making it a permanent measure, on Aug. 7, 1925.

Officially summer time begins at 2 a.m. on the day following the third Saturday in April, unless that is Easter Day, when it becomes the day following the second Saturday of April. It terminates at 3 a.m. (or 2 a.m. Greenwich time) on the day following the first Saturday in October.

European countries have used the scheme, abandoned and revived it from time to time, and in June 1930 the Soviet Union introduced it into Russia. In America some of the states favour it, while others refuse to entertain it. The opposition to the scheme comes from agriculturists mainly, who find it inconvenient to begin milking, harvesting, and other work an hour earlier; by educationists and those with the care of young children, who find their charges cannot sleep when put to bed during the bright daylight of the summer months and so waken unrefreshed and disorganised in the morning; by miners, hospital nurses and others. But while a certain amount of inconvenience is suffered, it is both slight and temporary, and the good done to the general community is beneficial and permanent. William Willett *d.* the year before his idea was put into operation.

Day Lily, the popular name for the *Liliaceae* genus *Heimerocallis*, common to Europe and Asia. *H. flava* is a yellow-flowered species cultivated in Britain for its sweet scent, and *H. fulva* is a species from S. Europe which is given to cattle for fodder.

Days of Grace, see BILL OF EXCHANGE.

Dayton: (1) Cap. Montgomery co. Ohio, U.S.A., situated in the Miami valley at the mouth of the Mad R., 50 m. N. by E. of Cincinnati. It is a leading centre of aviation research; is the home of the National Cash Register Co., and produces electric lighting plant for home use, refrigerators, aeroplane parts, etc. There is a state hospital for the insane and a branch of the National Home for disabled soldiers. In 1913 D. was covered with mud by a great flood

and then protected by dams. The first house built there, a log cabin, is preserved as an historical museum. The city covers 17 sq. m. Pop. 1900, 85,383; 1910, 116,577; 1920, 152,559; 1930, 200,982. (2) A city in Campbell co., Kentucky, U.S.A., on the Ohio, opposite Cincinnati, of which it is a suburb. Pop. 9071. (3) A city of Tennessee, co. seat of Phea co. Pop. 1701. In 1925 a teacher of science in the high school was found guilty of having violated a state law prohibiting the teaching in schools supported by the state of any theories that man is descended from the lower animals. William Jennings Bryan, who was briefed by the state of Tennessee for the prosecution, *d.* at D. a few days after the trial. It is proposed to found a fundamentalist university at D. as a memorial.

D'Azara, Felix, see AZARA, DON FELIX DE.

D'Azeglio, see AZEGLIO.

De Aar, a tn. of Cape Colony, S. Africa, one of the principal railway junctions of S. A., a centre of large live stock fairs, with a healthy climate. It is rapidly expanding. Pop. 1926, of whom 1518 are white, railway camp, 836.

Deacon (Lat. *diaconus*, Gk. *διάκονος*, an attendant, minister), an ecclesiastical officer in the Christian Church, whose offices and duties have varied greatly in different places and at different times. Their origin is connected by tradition with the appointment of the Seven (Acts vi.), but doubt is thrown on this theory by the fact that the Seven are never called Ds. in the N.T. and do not seem to have been thought of as such until the end of the second century. Allusions to the diaconate occur in several of the pastoral epistles, and with the development of the bishopric the office of D. became peculiarly attached to that. The chief functions of the D., as we may gather from the story of St. Laurence, archdeacon of Rome in the third century, were the care of the poor, with the collection and distribution of alms, and personal attendance on the bishop. In time, these functions were lost or absorbed by the minor orders, and the D. was left merely a particular part in the church service. In the Rom. and Anglican churches the diaconate is rarely a permanent office, but is considered a step to the priesthood, whereas in the East it retains more of its old character. Among certain Protestant bodies, such as the Presbyterians, the D. is a layman who has charge of finances, etc.

Deaconess, one of an order of women set apart for special service in

the Christian Church. In Rom. xvi. 1, and 1 Tim. v. 9 *et seq.*, we find traces of the first beginnings of this order, and at the time of the *Apostolic Constitutions* it already formed a distinct part of the church's organisation, and as such is mentioned in the canons of Nicæa and Chalcedon. Though Ds. were ordained in much the same way as deacons, there is no trace in their duties of any sacerdotal function. In the Western Church, the order was condemned at several councils from the fifth century onward, and fell entirely into abeyance during the Middle Ages. It has recently been revived in several of the reformed

Berlin, 1886. Excellent English translations by Le Page Renouf, 1890, and E. A. W. Budge, 1895 and 1901.

Dead-nettle, the popular name of several species of plants, in appearance the plant greatly resembling the stinging-nettles of the genus *Urtica*. Several of these herbs grow in Britain as wayside weeds.

Dead Sea (Lat. *Lacus Asphaltites*, Arabic, *Bahr Lūt*, Sea of Lot), scripturally called 'Salt Sea,' 'Sea of the Plains,' 'Sea of the Arabah,' is a lake in Asiatic Turkey near the S. extremity of Palestine. Its length is 46 m. and its greatest breadth 9½ (average 8½) m. The long oval of the lake is unequally divided by the El Lizan



BY THE DEAD SEA

churches, *e.g.* the Anglican and Presbyterian.

Deacon of a Trade, the temporary president of certain incorporated bodies in Scotland. These presidents represented their different trades or crafts in the various town councils before the Burgh Reform Act of 1834. This Act deposed them from their position as 'official' members, but still permitted them to regulate the business affairs of the crafts when appointed by election. See DEAN OF GUILD.

Dead, Book of the, a collection of texts, both religious and magical, written by the ancient Egyptians for the safe guidance of the soul through Amenti (the Egyptian lower world). This papyrus, or parts of it, was always buried with the mummy in his tomb. The later MSS. were very imperfect, but a pure edition was published by Edouard Naville in

peninsula, of loose calcareous formation. N. of the peninsula the greatest depth is 1273 ft., S. of that it is only 3 to 12 ft. It receives the Jordan and six other rivers but has no outlet, the surplus water being carried off by evaporation. The water is intensely salt, with a specific gravity one-sixth greater than water. Fish cannot live in the lake, but it has a therapeutic reputation for lepers, and the inhabitants on the banks are quite healthy. It is surrounded by high cliffs of bare lime-stone, and masses of sulphur exposed by periodically occurring earthquakes lie on its borders.

Dead's Part, in Scots law, the remaining portion of the movable estate which alone may be bequeathed by will. Where the deceased leaves a widow and no children, the widow takes one-half as her *jus relicte*, and the other half is D. P. If he leaves a

child or children and no widow, half goes to the issue as their *legitim* and half is D. P. If he leaves widow and children, one-third is D. P., the residue going equally to the widow and children. If he dies childless and unmarried every part of the estate is D. P. The same principles apply in the case of a wife leaving movable estate. The D. P., if undisposed of, devolves on the next of kin.

Deadwood, co. seat of Lawrence co., S. Dakota, U.S.A., in the extreme west of that state. It is the trading centre for the gold, silver, lead, and tin mines of the Black Hills. Was founded in 1876, and owns some buildings of architectural interest. Pop. 2559.

Deaf and Dumb. Deaf-mutism or deaf-dumbness in the sense in which it is used in this article denotes: (1) The congenital deafness which arises from some original malformation of the ear and which is always accompanied with dumbness; (2) deaf-dumbness attributable to post-natal causes. Acquired deaf-dumbness, which for the most part follows on some febrile disease in very early life, is of importance from the dactylo-logical standpoint, but in cases where deaf-mutism has occurred later in life it is obvious that the subject may well have learnt the arts of speech and writing before his affliction, and for that reason does not present the same problem to educators as the congenital deaf-mute. Complete deafness is by no means essential as a cause of complete dumbness: a small amount of deafness may well eventuate in dumbness. *Ætiologically*, inheritance is a potent cause of deaf-mutism; the intermarriage of deaf-mutes and consanguineous marriages are mainly responsible for its production. The principal causes of non-congenital deafness are those which produce some inflammatory affection of the middle ear. The most prolific sources are scarlet fever, and in a less degree, meningitis, measles, fevers, catarrhs, abscesses, smallpox, and erysipelas. It frequently happens that mental disorder is in some way connected with deafness, and the importance of an efficient means of education is apparent from the fact that D. and D. children, if uneducated, have perforce to be classed among imbeciles. It appears to be a psychological fact that without special education some form of mental disease will assuredly follow. A morbid condition of the mind must almost certainly eventuate where the deaf-mute, to however great an extent he may be susceptible to external impressions, is utterly unable to formulate coherent ideas from never having had

his intellectual faculties developed by communication with other and unafflicted human beings. In 1840 the proportion in Europe of deaf-mutes to the population was 1 to 1537; in Eng. 1 in about 1600. But happily it is demonstrable that the proportion is becoming less every year, a result due to the more scientific treatment of the various causes. In the decennial periods from 1851 to 1891 the proportions for the United Kingdom were respectively 1 in 1550; 1 in 1430 1 in 1642; 1 in 1694; 1 in 1814; 1 in 1879. It is higher in Ireland than in the rest of Great Britain, and higher in Scot. than in Eng. and Wales. The statistics, however, are not altogether conclusive, because many persons refrain from disclosing their affliction to the census authorities. The schedules did not require the 'deaf only' to state that fact, while on the other hand many were included in the category who properly belonged to the feeble-minded or aphasic dumb-classes. At the present day (1930) there are 50 schools for the D. and D. in Eng. and Wales, 10 in Scot., education is compulsory among the deaf: in Eng. from the ages of 5-15, in Scot. it is *permissive* from 3-18. In the Irish Free State it is not compulsory for the deaf to attend school. In the U.S.A. in 1927 there were 168 schools for the deaf, of which 83 were part of the city school systems, 69 were supported by the state, and 16 were under private control. The total enrolment of deaf students was 17,582, with instructors to the number of 2,303—of these 1853 were women, 450 men. There are schools in almost every other country in the world, although in some cases, notably China, Japan, India, and countries in S. America, the provision made is altogether inadequate. In regard to the instruction of the D. and D., it is to be noted that those instructed include for the most part persons whose vocal organs are perfect, but who from deafness are ignorant of the way to articulate the sounds of speech. Again the pupils comprise many who are not completely deaf. Deafness occurs in every degree and in some cases amounts only to an insensibility to the sharper notes of sound. This fact is carefully borne in mind by teachers when considering the best means of instruction in individual cases. But, of course, dactylogy or the manual communication of ideas is a science invented mainly in the interests of the more or less completely deaf, who, from never having heard a word spoken, are for that reason unable to use their vocal organs for speech. To such a person any lan-

guage is a foreign language, and this has always been strongly impressed on all teachers of the D. and D. Many of the earlier systems of teaching were faulty from the very ignorance of this important fact, *e.g.* the celebrated Abbé de l'Épée established through dactylography and articulation some connection in the mind of the pupil between certain methodical signs and the language of their country, but it was by no means established that he effected a subjective connection between those signs and the ideas which they were intended to represent. Nevertheless he attained considerable success, and his principles were carried further by his successor, the Abbé Sicard, and the basis of his teaching in signs is that of the chief modern systems. Signs are the natural language of the D. and D., but the attainment through signs of abstract thinking and conceptions is impossible unless a clear distinction is kept in mind between explaining a language and expressing it. The thoughts must first be awakened, and generally by signs as the most or only natural method; and when awakened those thoughts must be shaped in language by some manual alphabet or form of writing. Down to the sixteenth century there was next to no serious effort in the direction of instructing the D. and D. It was the common assumption that instruction by means of language was limited to those who could hear. Nay more, it was generally believed that deaf-mutes were naturally more debased than other men both in intellect and morals. Even Whatley, the logician, was capable of asserting that a deaf-mute, before being taught a language, was as incapable of carrying on a train of reasoning as a brute. Doubtless many of the D. and D. are intellectually and morally inferior, and remain habitually credulous, childish, of shallow sentiments, and scarcely susceptible to the emotions of pity or gratitude. But as indicated above, this is not necessarily so; some pupils have even attained to celebrity, notably Massieu, the pupil of Sicard. In Eng. shortly before the publication of Dalgarno of his treatise, the art of instruction of the D. and D. was advanced by John Bulwer and Dr. Wallis. Contemporaneously with these D. and D. philologists, Montans, Van Helmont, and Amman were occupied with its study in Holland; and in Ger., though later, Kerner, Arnoldi, and Heinicke were devoting attention to the subject. It was in Fr., however, that the greatest strides were made, as indeed was the case in the instruction of the blind (*see* BLIND), and the work

of De l'Épée and Sicard, however incomplete, cannot be over-estimated. In Eng., after Dalgarno's time, the art slumbered for many years. It was revived by Henry Baker, the naturalist, and in the middle of the eighteenth century Thomas Braidwood opened an academy in Edinburgh. Braidwood's success was remarkable. He opened another school in Hackney in 1783, and his sons opened other schools in Edinburgh in 1810 and Birmingham in 1825. The first public school for free instruction of the D. and D. was opened in Bermondsey in 1792, and of this school Dr. Watson, nephew of Thomas Braidwood, was head instructor for thirty-seven years. With the development of a more enlightened social system the days have long since passed when the duty of instructing the D. and D. was left to individual effort alone. The Elementary Education Acts, 1870 to 1891, make provision for the compulsory elementary education of 'defective' children, including in that term the deaf. The education authority are empowered by the Elementary Education (Defective and Epileptic Children) Act, 1899, to provide for the education of defective children either by establishing classes in public elementary schools certified by the Board of Education as special classes, or by boarding out subject to the Board's regulations, or by establishing and maintaining schools certified by the Board; and the Board may make parliamentary grants in aid of such special education. The London County Council makes special provision for deaf children, having six day schools for the wholly deaf, five for the hard of hearing, and three residential schools. There are also five centres where evening classes in lip-reading are held. The total number of deaf children in attendance at schools throughout Eng. and Wales in 1927 was 4179, in Scot. 671.

In 1919 a department for the training of teachers of the deaf was established at Manchester University, through the generous benefaction of Sir James E. Jones in memory of his deaf son, Ellis Llywd Jones, and a comprehensive course of study is guided by Mrs. Juene R. Ewing. There is residential accommodation for thirty students. The National College of Teachers of the Deaf is purely an examining body.

The close of the Great War brought serious hardship to many officers and men who had lost their sense of hearing by war service, 33,791 being discharged on account of deafness. On their behalf the Deafened Ex-

Service Men's Fund was founded in 1919, with headquarters at 23 Queen Anne's Gate, S.W. 1

Methods of instruction.—Where there is sufficient hearing the instruction may be auricular, but experience does not point to any great success in this method. Where the afflicted are completely deaf the methods must be such as appeal to the eye alone. The obvious ways of so appealing are by a sign language, representation by writing, printing, and pictures, lip-reading, and the manual alphabet. Generally speaking the two principal methods are the manual and the oral, which utilise the above means of appealing to the eye in varying degrees. The manual and the oral may also be combined, but the combined systems have not been productive of such success as the purely manual; and the oral, which is admittedly unpopular with the deaf themselves, produces a much lower percentage of successes than the manual. In the manual method, signs are first used to stimulate thoughts, and the thoughts are given vernacular expression to in the mind of the pupil by finger-spelling and writing. In Great Britain the two-handed, in Europe and America, for the most part, the one-handed, manual alphabet is in vogue. That this method is successful may be inferred from the fact that so many pupils can acquire an average shorthand speed of communication of 130 words a minute. Perhaps the first manual alphabet published in Eng. was that of Dalgarno in 1680.

So far as the single letters are concerned the system was simplicity itself. The rules were: (1) Touch the places of the vowels (*see diagram*) with a cross-touch with any finger of the right hand; (2) point to the consonants with the thumb of the right hand. The present two-handed alphabet appears to have been derived from Dalgarno's finger-alphabet. The one-handed alphabet was invented in Spain and was probably first published in the works of Bonet.

A dactylogy of syllables has occasionally been employed in the instruction of the D. and D., and a system of alphabetic and syllabic dactylogy was published by Dr. Deleau the younger in 1830. The application of finger-language to designate numbers is attributed to Mr. Stanbury, superintendent in a New York institution for the D. and D. Only one hand, the left, is used, the right being left free to record calculations.

The cipher is represented by the closed hand. To indicate this, the position of the hand is changed from perpendicular to horizontal; the

thumb is pointed forwards for 10, the thumb and forefinger for 20, and so on to 90. Hundreds are pointed downwards; thus the thumb, forefinger, and middle finger pointed downwards represent 300. If 572 be the number to be designated, three positions are required; the five fingers are pointed downwards for 500, the little finger and ring-finger forwards for 70, and the thumb and forefinger held upright for 2. To represent thousands, the left hand is placed across the body towards the right



TWO-HANDED ALPHABET

shoulder, and the signs which were used in front for units in this position represent thousands. Variations of position with the same signs are adopted for tens of thousands and higher numbers. Though complex in description, the whole is easy and comprehensive in operation. In the oral method, although reading and writing may be utilised as in the manual, the principal means employed are articulation and lip-reading. The *sounds* of letters as opposed to the names are taught through the medium of lip-formation; but, of course, the names must be taught where different pronunciations of the same letter are to be conveyed. Articulation, which in this connection denotes the teaching of deaf-mutes

to speak and to comprehend speech by merely watching the motion of the vocal organs, seems to be as old as the time of Bede. Not one pupil in thirty attains any appreciable degree of proficiency by this method, and in all probability it requires in the pupil a higher degree of intelligence. Much patience and kindness on the part of the teacher are absolutely essential. The speech, such as it is, of the deaf-mute (who must, of course, be of that class who are not completely dumb) is artificial, constrained, and laborious, and generally too loud and discordant from the obvious fact that he cannot hear himself speak and has never heard any one else speak. The system has never been a really serious rival to the art of dactylology, although opinion has differed on the question whether articulation is indispensable to the acquisition of thought. Ger. teachers think it is, Eng. teachers for the most part are of the opposite opinion. The Americans seem to hold a middle view.

Occupations of deaf-mutes.—These are necessarily wider than in the case of the blind (*q.v.*). Indeed only those in which speech and hearing are indispensable are closed to them. As an indication of the strides made in their education it may be instructive to note the following diversity of occupation: bookbinders, carpenters, cigar-makers, cutlers, gilders, hatters, jewellers, law-writers, optical and philosophical instrument makers, and printers of all kinds. Some have attained distinction in the highest branches of oil and water-colour painting, while one, at least, became a sculptor of great ability, and another a conveyancing barrister. The census returns, of course, show that the highest proportion are engaged either in non-productive and indefinite, or in industrial occupations; but none the less many have found employment in commercial and professional circles. See Tuke, *Dictionary of Psychological Medicine*; Addison, *Deaf-Mutism*; Kerr Love, *Deaf-Mutism*; Arbold, *Education of Deaf-Mutes* (Teachers' Manual); G. Sibley Haycock, *Education of the Deaf in America*, 1926; *The Problem of the Deaf*, 1929, compiled by The Nat. Inst. for the Deaf, 2 Bloomsbury St., W.C. 1.

Deafness, see EAR.

Deák, Ferencz (1803-76), a famous Hungarian politician, an eloquent speaker, and devoted patriot. Elected to the National Diet (1832), he soon, as leader of the Liberal opposition, promoted measures for the amelioration of the peasant's lot, and the reversal of the law exempting the nobility from taxation. He was

appointed Minister of Justice in Count Batthyány's cabinet (1848), but resigned his portfolio when a committee was formed under Kossuth. Returned to the Diet by Pesth (1861) he became leader of the Moderate party, and drew up the famous address to the Emperor Francis Joseph, demanding the restoration of the constitution of 1848 and an independent Hungarian ministry. The pre-1918 dual system of monarchy established between Austria and Hungary, after Austria's defeat in the war of 1866, was the result of his tactful policy.



FERENCZ DEÁK

Deakin, Alfred (1856-1919), an Australian statesman and orator, *b.* Aug. 3, 1856, at Fitzroy, Melbourne; son of Wm. D., a native of Towcester, Northants, accountant to a firm of coach proprietors. Educated at Melbourne University. Admitted to the Bar, Sept. 1877. Contributed non-political articles to the *Age* and the *Leader*. He represented Victoria in the Imperial Conference at London in 1887, and took a leading part in the cause of Australian federation as a member of the National Australian Federal Convention (1897), and of the Federal Council of Australia. He visited England a second time in 1900, as one of the Australian representatives in connection with amendment of the Commonwealth Bill. He succeeded Sir Edmund Barton as Premier of Australia, and held office three times between 1903 and 1910. Was appointed to represent the Commonwealth in the Imperial Conference,

1907. His works include: *Irrigation in India*, 1892; *Irrigation in Australia*, 1893; and *Temple and Tomb in India*, 1894. He was a Protectionist-Liberal-Imperialist: it is claimed for him that he was an imperialist before Rudyard Kipling began to boom imperialism; and for many years he preached the now settled dogma, 'White Australia.' Retired 1912, and in his last years suffered from loss of memory. Died at Melbourne, Oct. 7.

Deal (the valley, a form of Dale), a seaport and watering-place in Kent. It is one of the Cinque Ports, and Walmer Castle, 1 m. to the S., is the official residence of the Lord Warden. The Justices of the Cinque Ports still sit here. Henry VIII. built three castles in the neighbourhood: Walmer, Sandown, and D. Sandown Castle, at which Colonel Hutchinson d., had to be destroyed as dangerous owing to the incursion of the sea. The N. portion is now groyned by the Case system. The inhabitants are employed in boat-building, sail-making, and piloting, and are proverbially courageous. Pop. 12,998.

Dealfish, a genus of deep-sea fish, of the sub-order Acanthopteri. Seven or eight species are known in European waters. The vaagmaer from Norway and Iceland is found sometimes round the coasts of Scotland. It is about 4½ ft. in length, and silvery in colour.

Deals wood, the division of a piece of timber, generally by sawing. It is a term usually applied to fir planks. It is obtained from *Pinus*, a genus of coniferous trees, several species of which yield valuable timber. From Scotch fir we get Russian deal; from *Pinus Strobus*, white pine or deal from the U.S.A.; and there is also a species of yellow pine, it is exported from Russia, Norway and Sweden, and N. America, and is extensively used in house carpentry and shipbuilding. The planks are as a rule 7 in. wide, and in length varying over 6 ft.; less than 6 in. wide they are called 'battens.' Under 6 ft. long they are 'deal ends'; 1½ in. thick 'whole deal.'

De Amicis, Edmondo, *see* AMICIS, EDMONDO DE.

Dean (Lat. *decanus*, from Gk. *déka*, ten), the title of various ecclesiastical functionaries. The title was originally derived from a Rom. civil officer of whom we find mention under Theodosius and Justinian. Its first use is found in the monasteries, where the *decanus* had the supervision of ten monks. When the canonical life was introduced among the clergy in residence at the cathedrals, the same title was often applied to the head of

the chapter. Mention of an 'archipresbyter,' a somewhat similar officer attached to a bishop's staff, occurs in the time of St. Jerome, who uses the term in his fourth epistle to Rusticus. The D. of a cathedral has entire charge of the fabric of the building, the arrangement of the services, and the management of property. There are also certain *deans of peculiars*, who have charge of particular churches not under episcopal supervision, such as the church of Battle in Sussex and the chapels royal. *Rural deans* have held office in the Eng. Church from very early times. Their duty is to attend to the concerns of parts of a diocese and report thereon to the bishop. The Bishop of London is *Dean of the Province of Canterbury*. In the Rom. Church, the *Dean of the Sacred College* is the cardinal who has held rank longest. The office is generally held by the Bishop of Ostia and Velletri.

Dean Bashford (1867-1928), American zoologist. Professor of Zoology at the Columbia University from 1904 to 1927, and later, Professor of Fine Arts at New York University. After considerable experience in pisciculture, including special research work in the East and in Europe, he was appointed curator of ichthyology at the American Museum of Natural History, and the Hall of Fishes, opened subsequently, was the result of his labours. Received the Legion of Honour from France in recognition of his work in zoology. Also, during the Great War, he was adviser on armour to the War Department, and in that connection was member of a special mission to Europe during the War. Published *Fishes, Living and Fossil* (1895), and papers on arms and armour.

Dean, East and West, parishes of W. Gloucestershire, England, forming part of the Forest of D. Much coal and iron ore abound, also clay, building stone, and ochre. Pop. of E. D. 15,010, and W. D. 11,614.

Dean, Forest of, a tract of land in W. Gloucestershire, England, situated in the Severn and Wye valley. It was a royal forest, and much of the timber was cut down by order of Charles I., but it was reafforested by order of Parliament after the Restoration. A great portion of its timber was formerly utilised for the navy. It is divided into six walks of oak, beech, elm, etc. Much coal and iron abound throughout the forest.

Deane, a large par. of Lancashire, partly in the bor. of Bolton. It is situated on the Lancashire coalfield, and there are cotton mills and bleaching works.

Deane, Richard (1610-53), a British

admiral and general at sea. In 1644 he fought with the Parliamentary army in Cornwall, and was also present at the battles of Naseby, Preston, and Worcester. He was appointed joint commander with Blake and Monk in 1653, and lost his life at the first battle off the N. Foreland.

Dean of Guild, in former days head of the numerous trade guilds in Scottish burghs. His function was to act as arbiter in all mercantile and maritime affairs within the burgh. His present powers consist mainly in regulating the erection of suitable buildings and condemning those unfit for habitation. See DEACON OF A TRADE.

Death. Under BIOLOGY it was pointed out that there is a continual change proceeding in every cell of any organism, waste matter being carried off and new deposited. Thus the cells of any organism are continually dying, and D. in this molecular sense is an essential to life. But it inevitably follows that, because of this process of metabolism, D. in the larger sense, *i.e.* the D. of the entire organism, must ensue. Thus D. would occur *naturally* by the gradual decay of the organism as in old age, but most organisms do not die in this way. The majority of Ds. are *accidental*, being caused by disease or violence. And D. thus caused, must begin, as Bichat said, at the heart, the head, or the lungs. But these three *vital* organs, the heart, brain, and lungs, are mutually dependent, and while D. may be immediately caused by the failure of one of them, yet that one may have failed through an impairment in the functioning of another. D. from failure of the heart may be sudden, as in *syncope*, or gradual, as in the action of some poisons. Or, again, it may occur because the blood is insufficient in amount to excite the heart, as in the case of *anæmia*. D. from failure of respiration, or *asphyxia*, again, is chiefly due to violence, although certain poisons and *tetanus* may cause it. D. which begins at the brain, or D. by *coma*, is caused either by violence, or by the action of poisons, or by the formation of clots of blood in the vessels.

The signs of approaching D. are sometimes well marked, as in natural D. from old age, by a vacancy in the intellect, and an atrophy of the senses and sentiments. Again, delirium and even dementia, or imbecility, are often precedents of D. Similarly the muscles relax, and are incapacitated, the voice becomes low, and the heart either begins to fail gradually, the pulse becoming faster but weaker, or it may beat irregularly

though not weaker, or it may suddenly contract violently and stop. The respiration again may be hurried and panting, or slow and laborious, while the 'D. rattle,' as it is commonly termed, is caused through the passage of air from the lungs through the fluid (mucus) which has collected in the air passages. The signs of actual D. are: (1) *The extinction of the vital functions.* The cessation of circulation and respiration may not always signify D., for they may, as in drowning and in newly-born infants, be entirely suspended for a while and then restored, or they may even be reduced so low that while they have not ceased they may yet be incapable of detection. Loss of heat is a tolerably certain sign, although in exceptional cases the temperature may rise after D. Certain signs of D., however, are the loss of contractility of the muscles on application of a galvanic current. (2) *Changes in the tissues.* The most important of these is, of course, the *rigor mortis*, which, commencing in the neck and trunk, proceeds through the upper and then the lower extremities, finally passing away in the same order after from twenty-four to thirty-six hours, is a sure sign of D. (3) *Changes in appearance.* These are well marked, but the chief are the lividity of various parts of the body, and the appearance of a green tint on the skin of the abdomen, accompanied by a separation of the epidermis.

Death Duties. These include, since the passing of the Finance Act, 1894, and the Finance (1909-10) Act, 1910, estate duty, legacy duty, succession duty, and increment value duty. Where the deceased died on or before Aug. 1, 1894, his estate was liable, in addition to legacy and succession duties, to probate duty, account duty, and an additional duty imposed by the Customs and Inland Revenue Act, 1889, in extension of both estate and succession duties. The effect of the Act of 1894 was to supersede probate duty and account duty by estate duty, and to fix a date for the expiration of the additional duties imposed by the Customs and Inland Revenue Act, 1889. As these latter duties still apply wholly or in a modified form to property passing on a death that occurred on or before Aug. 1, 1894, they are of some slight practical importance.

Probate duty is a stamp duty formerly levied on all personal property within the jurisdiction of the Probate Court, and hence on all estate and effects in respect of which the personal representatives of the deceased derived title from the grant of probate of the will or letters of ad-

ministration. It has been concisely described as the price of obtaining probate. It is now payable on all personal estate passing on a death on or before Aug. 1894, and on property exempted from estate duty. Such estate or property includes all personally situated in the United Kingdom, and in certain cases in the Commonwealth of Australia and other colonies. The rate of the duty, which is only levied on estates over £100 in value, is on a sliding scale from a minimum of £2 to £10 on estates over £100 and not over £500; £12 10s. to £25 on estates over £500 and not over £1000; and at the rate of 3 per cent. on estates over £1000.

Account duty, also a stamp duty, is charged on any property taken as a *donatio mortis causa* made by the deceased; or under a voluntary disposition purporting to operate as an immediate gift *inter vivos*, whether by way of transfer declaration of trust or otherwise *bona fide*, and not made twelve months before the death of the deceased; property which the deceased has voluntarily caused to be vested in himself jointly with another, so that the beneficial interest may pass by survivorship to the other; property passing under a voluntary settlement by deed or any other instrument not taking effect as a will, whereby the settlor reserves to himself either a life estate or an absolute interest in reversion. The duty is only payable when the property exceeds £100. Hanson points out that a person may apparently evade the duty when disposing of his property by way of death-bed gifts or voluntary settlements, so long as the whole amount passing under each separate gift does not exceed £100.

Estate duty is a comparatively new duty imposed by the Finance Act, 1894, as amended by subsequent Acts. It supersedes probate duty, account duty, additional succession duty, the temporary estate duty imposed in 1889, and 1 per cent. legacy or succession duty. Although it is a substitute for probate duty, it taxes property which escaped the latter duty altogether. It is payable whenever property changes hands on death without regard to its ultimate destination, and the amount of the duty is unaffected by any testamentary disposition. It is also leviable on personal property situate abroad where the deceased was domiciled in the United Kingdom. It is calculated on the principal value (*i.e.* for all practical purposes the market value at the date of the death of deceased) of all property, real or personal, settled or not settled, which passes on death. It is not imposed on estates

which do not exceed £100, and the rate of duty payable is shown below: In the case of every person dying after June 30, 1925, where the principal value of all property, Real or Personal, Settled, or Not Settled, passing on the death of such person,

exceeds: per cent.	exceeds: per cent.
£100£1	75,000£18
500 2	85,000 19
1,000 3	100,000 20
5,000 4	120,000 21
10,000 5	140,000 22
12,500 6	170,000 23
15,000 7	200,000 24
18,000 8	250,000 25
21,000 9	325,000 26
25,00010	400,000 27
30,00011	500,000 28
35,00012	750,000 29
40,00013	1,000,000 30
45,00014	1,250,000 32
50,00015	1,500,000 35
55,00016	2,000,000 40
65,00017	

Estate Duty in respect of agricultural property is to be charged in part on agricultural value at the rates set out in the Finance Act, 1919, in lieu of the above rates.

The test of liability to the duty depends on whether the property 'passes' or can be deemed to pass on death, the duty being leviable, not by reason of some person *succeeding* to it on the death, but on account of a *change of possession* consequent on the termination of an interest by reason of the death. Property passing on the death of the deceased embraces property of which the deceased was competent to dispose at his death and property over which he had no power of disposition. This latter category relates principally to settled property in which the deceased or any other person had a limited interest ceasing at the death of the deceased, and the duty is aimed not at that limited interest, but at the property out of which it was carved, and the quantum of property taxable depends on the extent to which a benefit accrues by the cesser of such limited interest. Property in which the deceased or other person was only interested as holder of an office or as trustee, or recipient of the benefits of a charity, or as a corporation sole (*see CORPORATION*), are excluded from the operation of this principle and are exempt from the duty. The duty is payable on all gifts made by the deceased, otherwise than for public or charitable purposes, within three years before his death (except gifts in consideration of marriage). Before the Finance Act, 1896, the duty was leviable on

the cesser of an interest created by the settlor himself where the property reverted back to him; that Act, however, excludes property reverting to a settlor on the determination of a life or other limited interest created by him; property of which the settlor acquires the immediate reversion by reason of the determination of an intervening life-estate created by him in succession to a prior settlement on himself for life, and rents of real or leasehold property to which the deceased was entitled in right of his wife and which pass to his widow. The Finance Acts, 1894, 1896, and 1910, create a number of exemptions in addition to those indicated above; among which are included property of common seamen or soldiers dying in service, works of art given to the nation, and pensions or annuities payable by the Indian gov. to the widow or child of a deceased officer of such gov. The legal personal representative of the deceased is responsible for the duty on the property of which the deceased was competent to dispose, and he must pay it out of the residuary personality. The duty on property over which the deceased had a general power of appointment is only payable out of the residue when the power has been exercised and an executor appointed; if not, it is payable ultimately by the person to whom the property passed in default of appointment, and may be recovered from such person by the executor. In all other cases estate duty is payable by the persons to whom the particular property eventually goes, whether it be paid in the first instance by the executor or other personal representative or not. For the purpose of ascertaining the *rate* of the duty on each part of the property, the principal values of the different parts, subject to certain exceptions, are aggregated. The exceptions are property in which the deceased had no interest; real and personal property the combined value of which does not exceed £1000 exclusive of property settled otherwise than by his will, and objects of scientific or historic interest settled on different persons so as to be enjoyed by them in kind successively. In computing the principal value, a deduction may be made for funeral expenses, debts, and incumbrances. The duty on real estate may be paid by eight yearly or sixteen half-yearly instalments, 4 per cent. interest being charged on all unpaid portions of duty starting 12 months after death, and part of the land liable to estate duty may be accepted by the treasury in lieu of the duty. The Customs and Inland

Revenue Act, 1889, imposed an additional estate duty of 1 per cent. on the property of persons dying between June 1889 and June 1896. This duty was imposed over and above probate duty and account duty, and applied only to estates exceeding £10,000 in value. It was temporary in its nature and is rarely payable now. The following are the sums which have been paid into the national exchequer under Estate Duty in the given year ended March 31: 1925, £50,514,243; 1926, £52,861,205; 1927, £59,086,230; 1928, £68,621,348; 1929, £72,231,490; 1930, £69,548,208.

Settlement estate duty is a further duty of £2 per cent. payable on the principal value of settled property whether real or personal, or property contingently settled. The duty does not apply to property settled by a disposition that has taken effect before Aug. 2, 1894, nor where the only life interest is taken by the husband or wife of the deceased.

Legacy duty is a tax on the interest of the individual and beneficiary in personal property devolving under a will or on intestacy. The personality liable to legacy duty excludes leaseholds and moneys to arise from a sale of real estate (*see CONVERSION*), but includes all other personality and real property regarded in equity as already converted into money. Where the value of the whole personal estate is under £100 no duty is payable. Specific legacies under the value of £20 are not liable, and there are a few other exemptions. Where a legacy is expressly given free of duty, the duty is payable out of the residuary personality. In all other cases it is deducted by the executor, or other personal representative, from the amount of the legacy or share accruing to the legatee or next of kin. The duty is a percentage on the value of the legacy calculated according to the degree of the relationship between the testator and the legatee as follows: husband or wife and lineal ancestors or descendants, 1 per cent.; brothers and sisters or their descendants, 5 per cent.; all other legatees, including strangers, 10 per cent. Under the Finance Act, 1910, the husband or wife of the testator, or intestate, is exempt where the estate does not exceed £15,000 in value whatever may be the value of the legacy given to the surviving spouse. No duty is payable by the surviving spouse on a legacy under £1000 in value whatever the value of the whole estate, nor by the widow of the deceased, or a child under twenty-one on a legacy under £2000.

Succession duty is also a tax imposed on the interest on the beneficiary. It is chargeable on every succession to real or personal property, except as to personalty liable to legacy duty. Leaseholds are liable to succession but not to legacy duty. Succession duty, like legacy duty, is payable only on property coming under the jurisdiction of the courts of the United Kingdom. For the purposes of succession duty, the date of the instrument conferring the succession is immaterial. The duty is not payable, in the case of real estate, devolving to heirs or devisees, until the beneficiary becomes entitled in possession. No duty is payable where the principal value of all the successions is under £100. The rates, which are calculated according to relationship, as in the case of legacy duty, vary according to the date of the death of deceased. If the deceased died before July 1, 1888, the rates are the same as those for estate duty, provided the property in question be also liable to estate duty. If not liable to estate duty, and the deceased died after July 1, 1888, the property is liable to the additional rates imposed by the Customs and Inland Revenue Act, 1888. The rates would then be: $1\frac{1}{2}$ per cent. in the case of husband or wife, lineal ascendants and descendants; $4\frac{1}{2}$ per cent. brothers and sisters and their descendants; $6\frac{1}{2}$ per cent. uncles and aunts and their descendants; $7\frac{1}{2}$ per cent. great-uncles and great-aunts and their descendants; and $11\frac{1}{2}$ per cent. in other cases. Where the deceased *d.* between June 1, 1889, and June 1, 1896, and the value of the succession is over £10,000, an additional duty, imposed temporarily by the Customs and Inland Revenue Act, 1889, at the rate of 1 per cent., is payable. Leaseholds passing under a will or on intestacy and property liable to account duty are exempt from both the additional rates imposed by the Act of 1888 and the 1 per cent. temporary estate duty, provided, in the latter case, the temporary estate duty has actually been paid. The mode of valuing successions to realty before the Finance Act of 1894 was to capitalise the beneficiary's interest as if it were in the nature of an annuity equal to the annual value of the property; this was done, although the beneficiary was entitled to more than a life estate, on the principle that whatever the quantum of his estate, he could not enjoy the succession for a longer period than his own life. Since 1894, *i.e.* where the succession arises on a death occurring after Aug. 1, 1894, and the beneficiary is competent to dis-

pose of the property, the duty is charged on the principal value after deducting the amount of estate duty. The duty in either case is payable by eight equal half-yearly instalments, the first being due at the end of twelve months from the date of the beneficiary entering into possession. As in the case of estate duty, the person liable may agree with the Treasury to pay the whole or part of the duty in the form of real or leasehold property. In the case of a succession to personalty, the beneficiary of an interest limited to him for life only pays duty on the principal value of the annual income. If entitled absolutely, he pays on the principal value, and the duty becomes payable immediately. The incidence of the succession duty has been particularly severe in the case of large landed estates and where a number of deaths occur in the same family within a relatively short term of years the amounts paid by each successor are enough sometimes to cripple the estate for years. To avoid this heavy incidence there has been during the past decade or two a tendency to turn large estates into limited liability companies divided into so many shares which are usually held by members of the family, who are beneficiaries under the will. By this means large sums are saved in succession duties, but in introducing the Finance Bill in April 1930, the Labour Chancellor of the Exchequer, Mr. Philip Snowden, prophesied that measures would be forthcoming to restrain what really amounted to a palpable evasion of the tax. The fact remains, however, that the severe taxation to which large landed estates have been subjected in late years has led to a breaking up of these estates, and a phase of social life which has lasted for several centuries in England is slowly but surely passing. The stately homes of England are disappearing—a fact which will be regretted alike by poet and patriot. The following are the sums which have been paid into the national exchequer as legacy and succession duties in the given years ended March 31: 1925, £8,356,024; 1926, £8,262,188; 1927, £8,271,260; 1928, £8,363,066; 1929, £8,703,153; 1930, £9,587,719.

Increment value duty is a tax on land values, payable on the rise in the site value above the original site value as on April 30, 1909. It is payable at the rate of £1 per every £5 of that increased value, the amount of the duty being collected on a change of ownership. In so far as it is payable on the occasion of a death it may be regarded as a D. D. It applies to both leaseholds and realty. There

are a number of exemptions, total or partial, comprising agricultural land and holdings, recreation grounds, and flats. See Hanson's *Death Duties*, 1925; Robert Dymond, *Death Duties*, 1930.

Death's-head Moth, or *Acherontia atropos*, a curious species of the family Sphingidae. It is a fairly large hawk-moth with downy wings and its body is marked as though with a skull. When it is at rest it sometimes gives out a squeaking noise, produced probably by rubbing the palpi upon the proboscis. The caterpillar is about 4 in. long and is brightly coloured.

Death Valley, or the **Amargosa Desert**, a gloomy tract of desert land from 100 to 250 ft. below the level of the sea, situated in Inyo co., California, U.S.A. The Amargosa R. flows into it. It is noted for its salines.

Death Watch, the name of a certain class of coleoptera or beetle. They are about $\frac{1}{2}$ in. long, with small, round, and convex bodies of light brown colour. They are found in old wainscoting, and the wood dust they make in the process of their burrowings can often be seen near old woodwork. When disturbed they simulate death.

Deauville, a fashionable seaside resort in the dept. of Calvados, France, on the estuary of the Touques, with 4210 inhabs.

De Bary, Heinrich Anton (1831-88), a German botanist and biologist, who made valuable discoveries in mycology and bacteriology, demonstrating the power of parasitic growths in the production of disease. Chief works: *Die Mycetozoen*, 1864; *Beiträge zur Morphologie und Physiologie der Pilze*, 1864-82 (5 parts), *Vorlesungen über Bakterien*, 1885 (Eng. trans., 1888).

Debbieg, Hugh (1731-1810), a British general and cadet gunner who was present at the sieges of Louisbourg and Quebec under the commandship of Wolfe, and served with distinction at L'Orient (1746) and Bergen-op-Zoom (1747). A secret mission to France and Spain occupied him during 1767, and he was entrusted with the protection of London in the Gordon Riots (1780).

De bene esse, a technical legal expression equivalent to 'provisionally,' and applied to the conditional doing of an act for the time being, subject to such act being disallowed on a fuller examination of its propriety. The term is particularly applied to the provisional examination of a witness before a trial where it is feared that the witness, by reason of age or illness, may be unable ever to appear at the trial (see **DEPOSITION**). A verdict taken *de bene esse* is one that may be reversed on further consideration.

Debenture (Lat. *debentur*), is etymologically the first word in a document formerly used by the Crown admitting indebtedness to its servants or soldiers. Now we mean a deed by which a company charges its property and assets, and covenants to pay the holder the sum secured by the D. at a fixed date, together with interest up to that time. Under the Companies Acts, every debenture must bear the registrar's certificate of registration. There are registered Ds. and Ds. to bearer. The first can only be transferred in the company's books. Ds. to bearer are negotiable and pass by delivery with coupon attached for interest. It is a term used by customs officers for a certificate entitling an exporter of goods to receive bounty or drawback on exported goods.

Debit and Credit, see **BOOK-KEEPING**.

Deborah (Heb. 'bee'), the famous Israelite prophetess and 'judge,' wife of Lapidoth, who incited Barak to free her people from the Canaanite oppression which they had endured for twenty years. She joined Barak in leading an army against the Canaanites under Sisera, and completely vanquished them in the plain of Esdraelon. Sisera, a fugitive, was murdered in his sleep by Jael, wife of Heber, the Kenite. The triumphant outcome of this battle ensured a long peace. The famous 'Song of Deborah' commemorating the victory is regarded as one of the oldest recorded pieces of Scripture.

Debra Tabor, or **Deora Taboor**, a large dist. and tn. of Abyssinia, E. Africa, 35 m. E. of Lake Dembea.

Debreczen, cap. of co. of Hajdu, Hungary. It is the railway and commercial centre for the great plain, or steppe, E. of the Tisza, in which it is situated. Agriculture, cattle- and horse-breeding, manufactures of soap, saltpetre, and tobacco-pipes flourish. Though it is a scattered, rambling place, there are some fine public buildings, including a Protestant college, with library and museums, the finest educational establishment in the country. It is the headquarters of Protestantism, and is often called the 'Calvinist Rome.' There are four annual fairs and a famous swine market. Pop. 103,190, of whom 66 per cent. are Protestant, 20 per cent. Catholic, and 10 per cent. Jews.

Debrosses, Charles (1709-77), a Fr. lawyer and historian, b. and educated at Dijon. He became a judge in his native town, and gained the friendship of such distinguished men as Diderot and Buffon. He wrote *Histoire des Navigations aux terres Australes* (1756), employing the names

of Australia and Polynesia for the first time. He contributed articles on language to the encyclopædia of Diderot and Voltaire, and collected 700 fragments of Sallust which he published (1777), *L'Histoire du VII^e Siècle de la République Romaine, par Salluste*.

Debs, Eugene Victor (1855-1926), an American railway labour leader, b. at Terre Haute, Indiana. Served as a locomotive fireman. Appointed to Indiana state legislature (1885); president of Amalgamated Railway Union (1893-97) for whom he won a strike on the Great Northern Railway. Joined the Socialists in 1897. Socialist candidate for President: 1900, 1904, 1908, 1912, and 1920. From 1914 he edited the *National Rip-Saw*, St. Louis. In 1918, being opposed to the War, he was sentenced to ten years' imprisonment for obstructing recruiting. It was during his incarceration that he was for a fifth time nominated for President. He was released in Dec. 1921; and d. at Elmhurst, Ill.

Debt, a liquidated or determinate sum of money due from one person to another. D. includes an obligation to pay money on a contingency which must happen, but not where the event may not happen, e.g. a contract of suretyship is not a D. Ds. may be classified into: (1) Ds. of record, i.e. Ds. evidenced by the records of a court of a record, the principal being recognisances, and judgment Ds.; (2) specialty Ds.—that is, Ds. created by deed or confirmed by special evidence under seal, such as a covenant to pay rent on a lease, and (3) Ds. created by simple contract. Interest is payable on a D. only under an express or implied contract to pay interest, by trade usage, under a written contract to pay money on demand or at a fixed date, on money fraudulently withheld, in the case of Ds. secured on land, under the Civil Procedure Act, 1833, where the jury allows it, and on all judgment Ds. Ds. are recoverable (a) by action in the high court, whatever the amount. Under Order XIV. of the Rules of the Supreme Court the creditor may apply summarily for final judgment by specially endorsing his writ of summons for the amount and by filing an affidavit stating that in his belief there is no defence to the action, when he will be allowed to sign final judgment unless the debtor gets conditional or unconditional leave to defend by disclosing a *prima facie* defence; (b) by action in the county court where the D. does not exceed £100, or equitable debts, e.g. in a foreclosure action, up to £500. Actions in the high court may be

remitted to the county court where the creditor's claim is not over £100. There is an analogous procedure by default summons to the summary process in the high court. Actions on judgment Ds. and specialty Ds. are barred after twelve years, and those on simple contract Ds. after six (see LIMITATIONS, STATUTES OF). Judgment Ds. have priority over specialty and simple contract Ds. against the personal estate of a deceased debtor, unless the estate is insolvent, when if administered by the personal representatives, rates and taxes, wages or salaries of clerks or servants up to £50, and wages of labourers or workmen up to £25, must be paid first, but if administered in bankruptcy, the three classes are payable *par passu*. Ds. being choses in action are assignable under the Judicature Act, 1873, by writing signed by the assignor, and written notice of the assignment must be given to the debtor. There is now no imprisonment for debt, except on a judgment debt, where a debtor can pay and will not or has voluntarily put it out of his power to pay. In Scottish law Ds. charged on personality are called movable Ds. and those charged on land heritable Ds. They are recoverable either in the court of session or the sheriff court, there being analogous provisions as to jurisdiction to those which obtain in England. Following the Rom. law actions are only barred by long prescription. The process by which a creditor is allowed to detain the goods of his debtor, which happen to be in the hands of a third party, is by arrestment.

Debt Conversion is the practice adopted by national govts. to reduce the rate of interest payable on national loans raised at periods when money was comparatively dear. Wars are the principal causes of national debt, and in times of war govts., forced by the urgent need of raising money at very short notice, offer rates of interest which are higher than would be obtained in times of peace. And when the costly business of war is terminated, govts. are faced with long-dated loans bearing high rates of interest. Then the practice of D. C. begins. The history of Great Britain for the past two hundred years is marked by numerous operations of this character, and it will be noticed that the practice is most frequent after long and costly wars and in periods of cheap money. For the first conversion of British national debt, we must go back to the reign of Queen Anne, when a heterogeneous lot of floating liabilities was converted into £9,177,968 of South Sea Companies 6 per cent. stock. The year

1760 saw a conversion of £54,413,433 4 per cent. stock into the same amount of new stock. This, however, was to bear latterly the lower rate of 3 per cent. We now come to the period following the close of the Napoleonic wars, when numerous conversions took place. In 1817 the Irish debt of £103,033,750 was converted into debt of the United Kingdom. In 1822 £149,627,867 5 per cent. stock was converted into £157,109,217 4 per cent. stock, and two years later £70,098,935 4 per cent. stock was converted into an equal quantity of stock bearing interest at $3\frac{1}{2}$ per cent. In 1830 £150,790,176 was converted as to a small part into 5 per cent. stock at a price of 70, and as to much the greater part into $3\frac{1}{2}$ per cent. stock at par. A large conversion took place in 1844, when £248,757,311 $3\frac{1}{2}$ per cent. stock was converted into new stock bearing interest at the rate of $3\frac{1}{2}$ per cent. for ten years and 3 per cent. for twenty years. In 1853 Mr. Gladstone, in pursuit of thrift, saw to the conversion of £3,063,906 3 per cent. stock. In 1883 £70,241,908 3 per cent. stock was converted into terminable annuities, and in 1884 £23,362,596 3 per cent. stock was converted into $2\frac{1}{2}$ per cent. stock at 102 and $2\frac{1}{2}$ per cent. stock at 108. To Mr. Goschen belongs the credit of the last big conversion of the nineteenth century. On March 9, 1888, he brought forward in the House of Commons a plan for the conversion of the different 3 per cent. stocks into one class of stock, to bear interest payable quarterly at the rate of 3 per cent. for the year ending April 5, 1889, $2\frac{1}{2}$ per cent. for the next fourteen years, and $2\frac{1}{2}$ per cent. for the following twenty years ending April 5, 1923, and thereafter until redemption. This new stock was to be known as 'Two and three-quarters per cent. consolidated stock' until 1903 and afterwards as 'Two-and-a-half per cent. consolidated stock.' Mr. Goschen's proposals became law on March 27, 1888, and the scheme was highly successful. Coming down to more recent times, we find that the next series of conversions in Great Britain took place after the close of the Great War. After the outbreak of war in Aug. 1914, the British gov. had to borrow so heavily that on March 31, 1923, the total national debt stood at the enormous figure of £7,742,233,286. This amount included the capital liability (estimated) in respect of terminable annuities, £11,015,000 owing to the Bank of England and £2,630,769 owing to the Bank of Ireland. The enormity of this liability might well have appalled

the hearts of the stoutest, but the process of conversion began. £255,000,000 $2\frac{1}{2}$ per cent. consolidated stock, £137,470,000 $3\frac{1}{2}$ per cent. War Loan, 1925-28, £8,000,000, Annuities $2\frac{1}{2}$ per cent., and £1,000,000 Annuities $2\frac{1}{2}$ per cent. were converted into $4\frac{1}{2}$ per cent. War Loan 1925-45 under an option extended to subscribers when that issue was made in 1915. In 1917, when 5 per cent. War Loan 1929-47 and 4 per cent. War Loan 1929-47 were issued, an option to convert was given to holders of $4\frac{1}{2}$ per cent. War Loan 1925-45. A certain quantity of 5 per cent. Exchequer Bonds 1919, 1920, 1921 and 6 per cent. Exchequer Bonds 1920 were converted into the new War Loans. Four per cent. Funding Loan 1960-90 was issued in June 1919, and the option to convert was offered to holders of $4\frac{1}{2}$ per cent. War Loan 1925-45; 5 per cent. Exchequer Bonds 1919, 1920, 1921 and 1922; 6 per cent. Exchequer Bonds 1920; 4 per cent. National War Bonds 1st, 2nd, and 3rd series; National War Bonds 1st, 2nd, and 3rd series. The upshot of the option was that £120,617,000,000 was converted into Funding Loan and £72,203,000, into Victory Bonds. In 1921 holders of National War Bonds due at latest in Sept. 1925 were invited to exchange their holdings for $3\frac{1}{2}$ per cent. conversion loan redeemable at the earliest in 1961, and as a result bonds to the value of £163,328,133 were converted. Other large conversions followed, and as money is now (1931) comparatively cheap, it is to be expected that the British gov. will seize the first favourable opportunity of effecting further conversions. On March 31, 1923, the external debt of Great Britain stood at £1,155,653,503, and most of this was owing to the U.S.A. in the form of demand obligations. An agreement was reached in 1923 by the two govts. for the funding of this debt. See *further under DEBTS, INTER-ALLIED.*

Debt, National, see PUBLIC DEBT.

Debts, Internallied. At the close of the Great War, when the Allies were freed from the tension and strain of actual fighting, the respective govts. were able to devote themselves to the solution of problems which had arisen as a consequence of four years of the most intense fighting that had ever afflicted mankind. Money had been spent like water, and Great Britain had pledged her credit, not only on her own behalf, but also on behalf of her Allies. She owed huge sums to U.S.A., and huge sums were owing to her. Arrangements had to be made for the settlement of these colossal debts and delicate negotia-

tions entered upon. In 1922 the question of debt settlement was brought forward as a matter of urgency by U.S.A., which was the sole purely creditor nation amongst the Allies. This brought forth the famous Balfour Note, addressed by Lord Balfour on behalf of the British gov. to the Fr. Ambassador and to the representatives of the various European govts. which were interested. It was set out in this declaration that although Great Britain had lent more than she had borrowed, she was in the main favourable to the cancellation of the war debts which had been incurred as between the Allies. She could not, however, agree to the cancellation of debts owing to her from European nations without a similar concession being made by America in respect of British Debts. An agreement between Britain and America was concluded in 1923 by which the British debt was funded. Bonds to the value of \$4,600,000,000 were issued dated Dec. 15, 1922, and maturing Dec. 15, 1934, interest being payable half-yearly at the rate of 3 per cent. per annum from Dec. 15, 1922, to Dec. 15, 1932, and thereafter at the rate of 3½ per cent. per annum until the principal should be repaid. The agreement provides for the repayment of the principal by annual instalments increasing from \$23,800,000 in 1923 to \$175,000,000 in 1934. It should be mentioned that this agreement was concluded on behalf of the British gov. by Mr. Stanley Baldwin. Speaking in the House of Commons on Nov. 20, 1927, the Chancellor of the Exchequer stated that an agreement for the settlement of the War debt of Yugo-Slavia to Great Britain was signed on Aug. 9. The relief debts of the Yugo-Slavian gov. to this and other countries were to be repaid in full with interest at the rate of 6 per cent. up to Jan 1, 1927, and at 5 per cent. thereafter, within a period of 15 years, from Jan 1, 1927. Funding agreements have now been signed in respect of all the Allied War debts to Great Britain except that of Russia. With regard to the arrangement with France, the Chancellor said that there was an échelle by which the payments increased in the earlier years from £6,000,000 until they reached \$12,500,000 per annum. On March 31, 1928, the capital sums owing to Great Britain by Russia were £934,037,187, and by France £722,078,000. A funding agreement with the latter country has since been ratified. The following table shows the aggregate of agreed annuity payments due to Great Britain from various countries under

funding agreements and outstanding on March 31, 1929 :

Italy	£262,500,000
Yugo-Slavia	32,450,000
Rumania	30,950,000
Portugal	23,300,000
Greece	23,100,000
	<hr/> £372,300,000

The table below gives the amounts due by various nations to the U.S.A. and outstanding on Nov. 15, 1930. These debts have all been funded :

Great Britain	\$1,426,000,000
France	3,865,000,000
Italy	2,017,000,000
Belgium	404,730,000
Poland	178,560,000
Czechoslovakia	170,071,023
Rumania	64,560,560
Yugo-Slavia	61,850,000
Greece	31,760,000

Debureau, Jean Baptiste Gaspard (1796-1846), famous F. mimic, b. in Bohemia, son of a Fr. soldier. As a youth, led a wretched life with travelling troupes; but, having learned everything from balancing a ladder on his nose to 'le saut périlleux,' he hit on the idea of resuscitating a Roman Pierrot worthy of the days of Bathylus. Thus, with bedfouled visage, he came to the Funambules theatre, where Charles Nodier recognised his genius. Aided by his power as a farceur, his sangfroid, lively features and artistic intelligence, he quickly became the rage of Paris. Gautier, indeed, ranked him as an actor, with Talma and Rachel—'a happy and rare accident.' His son Charles (1829-73) was also well known as a pierror at the Funambules.

Debussy, Claude-Achille (1862-1918), Fr. musical composer, b. Aug. 22, 1862, at St. Germain-en-Laye, studied at Paris Conservatoire from age of eleven—under Lavignac, Marmontel, and Guiraud. Under the tuition of Massenet, he won the Grand Prix de Rome with his cantata *L'Enfant Prodigue* in 1884. His personality dominated music in Europe for a quarter of a century, and it has been said that D. alone is responsible for the fact that Fr. music is once more 'an example and an ornament to Europe' (M. André-Suarez). He revitalised most forms of musical art, whether symphonic, dramatic, pianoforte or lyrical. For his sheer technical skill combined with elusive originality he has been compared to Berlioz, and in point of innovation his legacy to music is the completion of the reform in harmony begun by Chabrier, Gabriel Fauré,

and others, and an adroit use of overtones and of unusual chords. After 1884 he lived in Italy for some years, where it is said he tried to forget the cramping influence of the old formulas and to strike out new laws more adapted to his intuition. One result was *Printemps*, an orchestral suite sent from Rome to the Institut, which appears to have shocked that body by its harmonic iconoclasm. In one point D. was well ahead of other innovators—he is not an innovator by mere caprice. He appreciated the oneness of all art; and he saw that music must develop along lines parallel to those along which poetry or painting develop. His next productions, *Ariettes oubliées*,



CLAUDE-ACHILLE DEBUSSY

Cinq Poèmes de Baudelaire and *Suite Bergamasque*, show the breakaway from romanticism towards the direct interpretation of feeling. He composed his celebrated Prelude to *L'Après midi d'un Faune* under the inspiration of Mallarmé, a work as original as the *Symphonie fantastique* of Berlioz and baffling for the apparent simplicity with which it succeeds in reflecting the feelings, now ardent, now sensuous, now profound, which it is intended to express. His next masterpieces were *Proses lyriques* (1894), *Chansons de Bilitis* and *Nocturnes* (1898), all impressionist pieces; and in 1902 his one opera *Pelléas et Mélisande*, an opera which frankly discards not only the old reputedly archaic forms, but also the lyrical dramatic form of Wagner. It is regarded by some critics as exhibiting a perfect balance between poetry and music. The only other

work he wrote for the theatre was the incidental music for d'Annunzio's *Martyre de Saint Sébastien* and a ballet *Jeu*, composed for Diaghilev. His later work was mainly chamber music and orchestral, including *La Mer*, *Iberia* and *Rondes de Printemps*. Died in Paris, March 26. (See *A Dictionary of Modern Music and Musicians* (DENT), and consult also Louis Laloy, *Claude Debussy*; Romain Rolland, *Musicians of To-day*.)

Decabrists, or **Decemberists**, Russian military conspirators including many officers who inaugurated a movement to overthrow imperial despotism (Dec. 1825). They sought to establish the legal equality of citizens, open the courts of justice to the public, abolish all monopolies and military colonies, and carry out much-needed reforms in church and army. In spite of the determination and courage of the conspirators, the movement failed. Nicholas I. treated them with great severity. They were refused a trial, five of the ringleaders were hanged, and the remainder banished to Siberia. See *Cambridge Modern History* (vol. x.), 1907.

Decadents (Lat. *de*, from; *cadere*, to fall), a school of young writers and artists, such as Baudelaire, Verlaine, Mallarmé, and Barrès, who were much discussed in France about 1882. The more debased took absinthe and drugs, and endeavoured by their eccentricities to attract public attention. The Symbolist movement rose from, and absorbed the best of, the D. The Symbolists were æsthetic and literary. They delighted in half tones, delicate shades of expression, and placed psychical sensation above realism. 'Decadent' is still applied to those modern writers and artists whose artistic ideal is the production of morbid and unhealthy types. See Symons, *The Symbolist Movement in Literature*, 1899.

Decagon (Gk. δέκα, ten; γωνία, angle), in geometry, a figure with ten sides and ten angles, called a regular D. when all the sides and angles are equal.

Decalogue (δεκάλογος, ten sayings), the name under which the Gk. fathers speak of the Ten Commandments, of which two versions are given in the O.T., viz. in Deut. v. 6-21, and Exod. xx. 2-17. According to the account given in Exod. xx., they were given to the Israelites by Jehovah on Mt. Sinai, and were engraved by his finger on two tables of stone. These being broken, Moses was commanded to hew two fresh tables on which Yahweh again engraved the commands. In the Western Church since the time of Augustine it has generally been held that

the first four commandments, giving the duty towards God, were inscribed on the first table, and the last six, the duty towards one's neighbour, on the second. Philo and Josephus, however, assume the natural arrangement of five on each table. There are three distinct arrangements of the commandments: (1) The Talmud makes the introductory sentence, 'I am the Lord thy God which have brought thee out of the land of Egypt, out of the house of bondage,' the first commandment, and then combines the next two (Exod. xx. 3-6) into one, thus keeping the number ten; (2) Rom. Catholics and Lutherans also combine these two commandments and keep the number by splitting the last commandment into two; (3) the Gk. Church, the Anglican Church, and all the other reformed bodies keep the arrangement assumed in this article. The D. deals with moral, not with ritual questions, and its date is now generally fixed by critics at the eighth century B.C. or somewhat later.

Decameron, see **BOCCACCIO**.

Decamps, Alexandre Gabriel (1803-60), a celebrated Fr. painter, *b.* in Paris, and the pupil of Abel de Pujol, David, and Ingres. He first exhibited in the Salon of 1827, the originality of his style at once attracting notice. He founded the Fr. School of Orientalism, and took high position as a colourist, landscape, and genre painter. 'Café in Asia,' 'Street of a Rom. Village,' 'Children Playing near a Fountain,' are among his finest pictures. Chantilly and the Wallace collection in London contain some of his best work. See *Life* by Moreau (1869), and Clement (1886).

Decapitation, or beheading, an anct. punishment employed by the Gks. and Roms. First incurred in England by Earl Waltheof, beheaded by William the Conqueror (1075). Not only felons but also delinquents of high rank were formerly decapitated, the rebel lords of 1745 being the last Englishmen to incur that penalty. Those capitally convicted in France are still beheaded with the guillotine. See **CAPITAL PUNISHMENT**.

Decapoda, the order of malocostate crustaceans which includes crabs, lobsters, crayfishes, and shrimps, and is therefore the order best known to the vulgar. Usually all the thoracic segments are fused to the head in the species, and there are always five pairs of trunk legs; the sexes are distinct. The decapods are widely distributed, favouring chiefly the warmer seas. The term is also used for the sub-order of Cephalopoda, which have eight arms and two tentacles.

Decapolis (Lat. from Gk. Δεκάπολις,

ten cities), a name used in anct. writings to denote a league of ten cities situated in or near Palestine and mainly E. of the Jordan. In the second century the number was apparently increased. The confederated cities included Scythopolis, Philadelphia, Damascus, Della, Dium, Hippos, Gadara, Gerasa Raphana in Bashan, and Kanatha. Details are obscure, but these towns were probably founded or settled in by some of Alexander the Great's veterans, when in his conquest of the East (331 B.C.) he opened up the old Semitic world to the influences of Gk. culture.

Decatur: (1) A city of Macon co., Illinois, U.S.A., situated 40 m. E. of Springfield. Its manufactures consist of corn products, agricultural machines, brass goods, and tools, cars and trucks, and soda fountains. There are large flour-mills, and a university. The Cincinnati, Hamilton and Dayton, with the Illinois Central railways, pass through the city. Pop. 57,510. (2) A city in N. Alabama formed in 1927 by the union of New D. and D. It has important manuf. Pop. 15,593. (3) A city of Georgia, U.S.A., a health resort close to Atlanta. Pop. 13,276.

Decatur, Stephen (1779-1820), an American naval commander of Fr. extraction, *b.* in Maryland. He achieved distinction by his daring feat at Tripoli (1804) when he made a dash into the harbour and burned the British frigate *Philadelphia*, which the Tripolitans had captured. He also captured the British frigate *Macedonian*, when commodore of a squadron off the Atlantic coast in 1812. Soon after leaving New York (1814) he was engaged in a hard fight with the British fleet and forced to surrender. The same year he sailed in command of a squadron against Algiers, but the war was soon concluded by a treaty dictating terms to Algiers, Tunis, and Tripoli. He met his death in a duel near Washington with Commodore James Barron. See *Life* by Mackenzie (Boston), 1846, and Brady, *Stephen Decatur* (Boston), 1900.

Decazes, Elie Duc (1780-1861), a Fr. statesman, *b.* in the Gironde. At the Bourbon restoration (1815), Louis XVIII. made him successively prefect of police, minister of police, and finally prime minister. His Liberal partisanship offended the ultra-royalists, who revenged themselves by accusing him of complicity in the murder of the Duc de Berry (1820). D. resigned and became ambassador in London. He returned in 1821 and resumed his part in public affairs, but in 1848 he retired finally from politics.

Decazeville, a tn. of France in the dept. of Aveyron, 34 m. N.W. of Rodez by rail. Duc Decazes, minister of Louis XVIII., established iron-works, which are still supplied by the iron mines in the vicinity. It is also the centre of the coalfield of the Aveyron. Pop. 14,260.

Deccan, or **Dekkan**, comprehensively includes those territories of India that are situated S. of the R. Nerbudda, though more particularly the district stretching between that river and the Kistna. The states of Mysore and Hyderabad and the provinces between Madras and Bombay form a part of this large tract. With the Ghats rising to 8000 ft. on the W. it forms a high plateau.

Deceased Wife's Sister. The Marriage Act, 1835, nullified as from that date all marriages between persons within the prohibited degrees of affinity (relations of marriage) while legalising those already celebrated. But by the Deceased Wife's Sister Marriage Act, 1908, marriage with a D. W. S. is legal. The agitation for the legalisation of marriage with a D. W. S. was keenly sustained throughout the intervening period, and the matter was forced upon the attention of the House of Commons some thirty times between 1855 and 1907, a bill for legalising such a union being actually passed by the House as early as 1850, but thrown out by the House of Lords. Previously to 1907 marriage with a D. W. S. was valid in nearly every self-governing colony, but the strenuous opposition of the High Church party prevented legalisation in England. The Act of 1907, while validating the union as a civil contract, expressly permits any minister of a church or chapel of the Church of England to refuse to celebrate the marriage without incurring any penalty, civil or ecclesiastical; but the clergyman so refusing may permit another to officiate in his place. The Act does not legalise marriages annulled before Aug. 28, 1907, and saves all existing rights and interests. Consequently the Act in no way affects the devolution of property on intestacy as to the issue of marriages celebrated before the Act. The Act also provides that adultery with a wife's sister shall still constitute a right on the part of a wife to sue for divorce under the Matrimonial Causes Act, 1857.

Decebalus, see **DACIA**.

December (Lat. *decem*, ten), the name given to the last, or twelfth, month of the year. It is so called because before the time of Julius Cæsar the first month of the old Rom. calendar was March, so that what is now the twelfth month was

only the tenth. The Anglo-Saxons called D. 'Mid-winter-month' or 'Yule-month.'

Decemberists, see **DECABRISTS**.

Decemviri (Lat. 'the ten men'), ten magistrates of supreme authority at Rome. After the fall of the Tarquins dissatisfaction was still rife among the plebeians, because, there being no written code of laws to protect them, they depended for justice on the pleasure and will of the patricians. The tribunes appealed on behalf of the people to the senate, and in 451 B.C. the new magistrates were appointed (*Decemviri legibus scribendis*, the Ds. for writing the laws). The first Ds. were Appius Claudius, T. Genutius, P. Sextus, Sp. Veturius, C. Julius, A. Manlius, Ser. Sulpitius Pluricius, T. Romulus, Sp. Posthumus. Their authority was supreme, and with their appointment all other magistracies ceased. According to the agreement the plebeians were eligible to the new order, but no plebeian was elected in 451 B.C. At the end of their year of office the Ds. published a code of laws based on the laws of Solon and other great lawgivers. These laws were exposed to public view and solemnly ratified by the priests as augurs. The laws were ten in number and were inscribed on tables in brass. Two more were added, and they became known as the *leges duodecim tabularum* (laws of the twelve tables). The order continued to be elected each year for three years, but in the third year their behaviour became so despotic that the people were exasperated. The attempt of Ap. Claudius to dishonour Virginia roused the people to abolish the order, and the consuls were restored. The laws of the twelve tables still remained the nucleus of Rom. law. There were other orders of Ds. at Rome. The *Decemviri sacris faciundis* (Ds. for the performance of sacred rites) were appointed by Tarquin to guard the Sibylline books; they were originally two, but afterwards ten in number (five being patricians and five plebeians), and Sulla increased their number to fifteen (called 'quindecimviri') in 81 B.C. The *Decemviri litibus judicandis* (Ds. for judging cases) had jurisdiction in civil cases during the republic and the empire.

Dechales, **Claude François Milliet** (1611-78), an Italian mathematician b. at Chambéry. His edition of *Euclid* was long accepted as a standard work in France. His collected writings on mathematics, mechanics, and astronomy were published in *Mundus Mathematicus*, 4 vols., second edition, 1690.

Deciduous Trees are those which shed their leaves annually, which

takes place in temperate climates in autumn. The fall of the leaf is caused by a layer of cork, the abscission layer, being formed across the base near the insertion of the leaf. This layer becomes disorganised, as water cannot pass through it, and so causes a break, which is hastened by wind or frost.

Decies, John Graham Hope de la Poer Beresford, fifth Baron, soldier; b. Dec. 5, 1866, second son of third baron. Educated at Eton. Entered army, 1887. A.D.C. to Gov. of Madras, 1888-89. Served against Matabele, 1896. Commanded 37th Imperial Yeomanry, S. Africa, 1902, as Lieut.-Colonel. Commanded Tribal Horse, Somaliland, 1903-4. Succeeded to title, July 30, 1910. Chief Press censor, Ireland, 1916-19. Member L.C.C., 1922-25.

Decimal Fractions. On account of the difficulty found in manipulating many small fractions such as $\frac{1}{2}$, $\frac{3}{4}$, $\frac{1}{10}$, particularly in addition and subtraction, it was found necessary to devise some simpler system of notation. This was done by an extension of the ordinary system of numeration. If we take the number 125, the figure 5 = five units; the figure 2 = two tens; the figure 1 = one hundred; i.e. going from right to left a figure becomes ten times as great at each step. A dot (called the decimal point) being placed after the units figure; this process was then carried further, and figures were made to continue decreasing by ten at each step from left to right. Thus, in 125.346, the 3 = three-tenths; the 4 = four-hundredths; the 6 = six-thousandths; the whole number = 125 $\frac{346}{1000}$. To turn any vulgar fraction into a simple decimal fraction it must be possible to bring its denominator to a power of ten. Hence, any vulgar fractions whose denominator contains any prime factor other than 5 or 2, will always contain some element which is repeated to infinity, the process never ending. Thus $\frac{1}{3}$ = .3333, etc. This is abbreviated as .3, a dot being placed over the figure, and it is spoken of as 'point 3 recurring.' Sometimes a whole series repeats, e.g. $\frac{1}{7}$ = .142857, and here a dot is placed over the first and last figures. Similarly, $\frac{1}{9}$ = .16.

Decimal System, the name applied to any system of weights, measures, etc., which has the standard unit divided into tenths, hundredths, etc., for parts below it, and multiplied by ten or powers of ten for parts above it in value. It has been adopted for weights and measures and money in most of the European countries, but has been rejected in this country and in America for various reasons, one of the chief being that our system

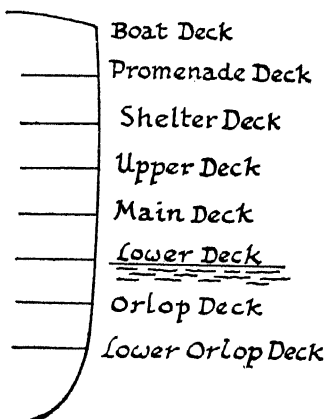
possesses better facilities for dividing into halves and quarters with fairness to purchasers than does the D. S. It has been found inapplicable to time. See METRE, NOTATION, NUMERALS, GRAMME.

Decimation, a Rom. military punishment, inflicting execution on every tenth man chosen by lot, thus obviating too great weakening of the army when a large body of soldiers had been found guilty of a crime meriting death.

Decius, Caius Messius Quintus Trajanus, a Rom. emperor b. at Budalia in Lower Pannonia. In 249 he was sent by the Emperor Philip the Arab to put down a rising of the Moesian army, but the soldiers made him their emperor against his will and persuaded him to advance against Italy. They met Philip the Arab near Verona who after a fierce engagement was killed. Throughout his short reign he was in constant conflict with the Goths and barbarously persecuted the Christians. He was killed in battle against the Goths through the treachery of Gallus, who succeeded him as emperor.

Decius Mus, Publius (340 B.C.): (1) Consul at Rome and commander of the Rom. army during the Latin War. Tradition says a vision told him that the army of one side and the general of the other must perish. The following day, at Vesuvius, D. sacrificed his life to ensure a Rom. victory. (2) Decius, son of the above, and four times consul. In order that the Rom. arms might triumph he d. with similar heroism at Sentinum, 295 B.C.

Decize, a tn. in the dept. of Nièvre,



THE DECKS OF THE MAURETANIA

France, is situated on a rocky island in the Loire, at the summit of which is an old castle. It has glass works, potteries, and iron works. Pop. 4385.

Deck, the term used in ship structure to indicate the floor or platform extending from side to side of the vessel. It is usually made by covering the deck beams with steel or planking. All decks, particularly the upper or 'weather' deck, have a slight camber or slope towards the ship's side to afford strength and facilitate the dispersal of water. Three, four, and even five decks are usual in modern ships, the protective decks, fitted exclusively to men-of-war, being always heavily armoured.

Decken, Karl Klaus von der (1833-65), a German African explorer; he explored Africa from Mombassa to Kilimanjaro, travelling exclusively along the coast. He was murdered by a Somali (1865) when in charge of an expedition for the exploration of East African rivers. See Kersten's *Von der Decken's Reisen in Ostafrika*.

Decker, Thomas, see DEKKER.

Declaration, in the language of pleadings before the abolition of forms of action by the Judicature Act in 1873, meant the statement of his case by the plaintiff in an action at law. It formed the statement of claim, the first of the pleadings in an action in which the plaintiff states the nature of his case at greater length than in the writ of summons. Any natural variation in the D. from the tenor of the writ was ground for objection, and similarly with respect to a statement of claim. The term D. as now used means that part of the order or judgment of an equity judge or judge of the Chancery Division which *declares* the rights of the parties to a suit by way of incidental relief, or even where no relief can be given in the action at all other than such as may be implied by the declaratory judgment, as, for example, that a mortgagor's estate is forfeited, that a surety is discharged, that a solicitor shall have a lien on particular property, or that a party is legitimate.

Declaration, Statutory, a declaration in the form: 'I (*name*) do solemnly and sincerely declare that (*subject matter of declaration*), and I make this solemn declaration conscientiously believing the same to be true, and by virtue of the provisions of the Statutory Declaration Act, 1835,' was by the Act substituted for an oath or affidavit for most official or departmental matters, including the verification of documents. The oath of a witness in a court of law is not affected by the Act, which specially excepts it.

Declaration of Independence, one

of the most far-reaching documents in the history of mankind, was adopted by the Continental Congress of the thirteen original states of the U.S.A. on July 4, 1776. As it marked the birth of a nation at the historic Independence Hall in Philadelphia, it is still celebrated as the great American national holiday. The adoption of the Declaration, which marked the definite breaking away of the colonies from the rule of Great Britain, was only secured after much delay and doubt. Hostilities had already broken out between the colonists and the troops of King George III. Nevertheless, the Congress sent a petition to the King asking that their wrongs be redressed. He not only declined to receive the petition, but refused to see the messenger who bore it. Furthermore, in a proclamation, he declared the colonists in a state of rebellion and no longer under his protection. Being unable to secure in England all the troops that he needed, King George hired Ger. troops from Hesse-Cassel, hated by the colonists under the name of 'Hessians.' These acts infuriated the Congress and the people, and the conviction came slowly to them that they had no recourse but to declare their independence and fight for it. A committee was chosen to prepare a declaration and Thomas Jefferson, afterwards third President of the U.S.A., became chairman, and to him was assigned the task of writing the far-reaching document. It was adopted on July 4 and signed by most of the delegates in the following month. Part of the language of the preamble has passed into the language of the world:

'We hold these truths to be self-evident, that all men are created equal, that they are endowed by their creator with certain unalienable rights; that among these are life, liberty and pursuit of happiness. That to secure these rights, governments are instituted among men, deriving their just powers from consent of the governed. That whenever any form of government becomes destructive of these ends, it is the right of the people to alter or abolish it, and to institute new government, laying its foundations on such principles and organising its powers in such form as to them shall seem most likely to effect their safety and happiness.' It stated that the history of King George was one of repeated injuries and usurpations. It recited that he had refused assent to laws necessary for the public good; had dissolved representative houses repeatedly because they op-

posed his invasions of the rights of the people; had made judges dependent on his will alone; had cut off the trade of the colonies from the rest of the world; had in many cases deprived his subjects of trial by jury; had imposed taxes without their consent; had quartered troops on the people; and taken away their charters. It concluded with a declaration that the colonies were and as of right ought to be free and independent states, severing all allegiance to the British crown, and that as free and independent states they had all power to levy war, conclude peace, contract alliances and establish commerce.

This document, backed up by a successful war for independence, changed the course of history. It forever challenged the idea of the divine right of kings. It was the inspiration of the Fr. Revolution, with its battle cry of 'Liberté, Egalité, Fraternité.' Echoes of it were heard often during the Great War and the peace conferences which followed it, when statesmen repeated the doctrine that peoples have the right of self-determination. Monarchs, like the ex-Kaiser, even down to the days of the Great War, sought to enforce the doctrine of their divine right to rule, but the impulsion of self-government would not be denied. To-day Great Britain, with a constitutional king, is the shining example to the world of how a nation can have a royal house and yet be one of the freest and most democratic countries in history. But long before this condition had been reached in Europe, the Declaration of Independence had affected the whole subsequent history of the New World. The Spanish colonies of Mexico and of Central and South America broke away and set up republics whose constitutions were largely modelled on that of the U.S.A. Brazil broke away from monarchist rule and became a republic. Canada, by generous and far-seeing treatment by the British Crown, remained within the empire, but is just as free as the U.S.A.—master in its own house.

Declaration of London, a document which has for its object the international regulation of the mutual rights and obligations of belligerents and neutrals in time of war between any two or more of the signatories thereto. It was drawn up by the International Naval Conference held in London in 1909, at which plenipotentiaries of the Great Powers met, primarily for the purpose of coming to some agreement as to the recognised rules of international law in regard to the establishment of an

International Prize Court. It was a work of compromise and mutual concessions, and aroused violent discussion in parliament in April 1909 after its provisional ratification by the Powers earlier in the year, besides prompting an amount of angry criticism outside, many influential chambers of commerce and shipping bodies passing resolutions opposing its ratification. The declaration, which in a preliminary provision states that its rules correspond substantially with the generally recognised principles of international law, contains some seventy-one articles, the provisions of which relate mainly to blockade in time of war, contraband of war, the treatment of vessels violating neutrality, the destruction of neutral prizes, and the transfer of enemy ships to a neutral flag. Probably the most important articles are those concerning contraband. Lists are drawn up enumerating things to be treated as absolute contraband, things conditionally contraband and things not to be treated as contraband at all. The question of whether things conditionally contraband become actually contraband is determined by the destination of the things according to the traditional notion of things 'conditionally contraband.' Article 37 provides that a vessel carrying goods liable to capture as contraband may be captured on the high seas or in the territorial waters of the belligerents throughout her whole voyage, even if she is to touch at a port of call before reaching the hostile destination. Contraband goods are liable to condemnation, and a vessel carrying contraband may be condemned if the contraband, reckoned either by value, weight, volume, or freight, forms more than one half the cargo. A vessel is deemed to be aware of the existence of a state of war, or of a declaration of contraband, if she left a neutral port subsequently to the notification of the outbreak of hostilities to the Power to which such port belongs. By Article 35 conditional contraband is only liable to capture when found on a vessel bound for territory belonging to, or occupied by, the enemy, or for the armed forces of the enemy, and when it is not to be discharged in an intervening neutral port; and the ship's papers are conclusive proof both as to the voyage on which the vessel is engaged and as to the port of discharge, unless she is found clearly out of the course indicated by her papers and unable to give adequate reasons to justify such a deviation. A neutral vessel will be condemned and, generally, receive the same treatment as a neutral vessel liable to condemnation

for carriage of contraband; captured neutral vessels may not be destroyed by the captor, but must be taken to a port for the determination there as to the validity of the prize. Neutral vessels under national convoy are exempt from search, but the commander of the convoy must give at the request of the commander of a belligerent warship all information as to the character of the vessels and their cargoes which could be obtained by search. Then follow provisions as to compensation. In regard to blockade, the D. of L. repeats the Declaration of Paris (*q.v.*), and establishes that a blockade must not extend beyond the ports and coasts belonging to, or occupied by, the enemy, and also that it must be applied impartially to the ships of all nations. In the summer of 1910 a Bill was introduced into the House of Commons for the establishment of the International Prize Court at The Hague, but the ensuing controversy resulted in the bill being dropped for the time being, the government promising to submit the matter to the Imperial Conference of 1911. At the Imperial Conference, however, the declaration was ratified by the delegates. When the Great War broke out the Declaration of London had not been ratified by Great Britain, but immediately afterwards it was adopted by Orders in Council, with certain modifications, chiefly referring to conditional contraband and the doctrine of continuous voyage (*see* BLOCKADE). As the War progressed the Declaration was found to be extremely unsatisfactory and, after further modifications, was eventually dropped altogether by the Maritime Rights Order in Council of July 7, 1916. At the outbreak of the War the other belligerents followed much the same course as Great Britain, but gradually the Declaration was modified out of recognition, and before the end of the War it had ceased to be an instrument possessing binding force.

Declaration of Paris, the object of this declaration, which was adopted by the leading European powers at the Congress of Paris in 1856, was to assimilate the principles of the maritime law of the different signatories on an outbreak of war. The principal articles declare: (1) Privateering is, and remains, abolished; (2) a neutral flag covers enemy's goods, except contraband of war; (3) neutral goods, except contraband of war, are not liable to confiscation under a hostile flag; (4) blockades to be binding must be effective. The result of the fact that since 1856 every civilised state, except the United States, Spain,

Mexico, and Venezuela, has signed the declaration is that privateers can only be employed by the signatories during a war with one of the four outstanding states. On the outbreak of the Hispano-American War of 1898, the government of the U.S.A. bound itself to observe the articles of the declaration during the war, while Spain agreed to become bound by articles (2) and (3), with a reiteration that the declaration was not binding upon her. The U.S.A. also intimated at the outbreak of the Civil War that they would observe the declaration. *See* Hall's *International Law*.

Declaration of Rights, *see* BILL OF RIGHTS.

Declarations of Deceased Persons.

It is axiomatic in the English law of evidence that hearsay is inadmissible as proof. The best evidence that a particular statement was made is the testimony of him who made the statement. But there are certain cases where it is impracticable to adhere to the rule, and among those excepted cases are the oral or written D. of D. P. Such statements which are relevant to prove any fact in issue or any fact regarded as relevant to any fact in issue include the following: (1) A declaration or statement made by a person who can be shown to have been in actual danger of death, and to have given up all hope of recovery at the time of making the declaration. Such a declaration is only relevant in the trial for the murder or manslaughter of the declarant; and to be admissible the declaration must have had reference either to the cause of death or to the attendant circumstances thereof. (2) A declaration against the pecuniary or proprietary interest of the declarant. It must be shown that the deceased had no interest in misrepresenting the matter in question, that he made the statement at or very shortly after the time when the act occurred which is sought to be proved, and that he had peculiar means of knowing the matter stated. (3) Statements made by a person in the ordinary course of business or in the discharge of professional duty. (4) Declarations as to pedigree, relating to the pedigree of some person of whom the declarant was a legitimate blood relation. If made after the commencement of the action they would be inadmissible in evidence. (5) In cases where a will has been lost, or there is a suggestion that a particular will was a forgery, or obtained by wrongful means, statements made by the testator concerning the contents of his will or the manner in which he intended to dispose of his property. (6) Statements relating to

the existence of a public or general right, e.g. a right of way. For the purpose of perpetuating the testimony of a person whose death is apprehended, the criminal law allows his deposition to be taken down in writing and afterwards used in evidence on proof that the deponent either is dead or unlikely ever to be able to travel or give evidence.

Declarator. In Scots law, Ds. or declaratory actions form one of the three classical divisions of Scottish actions. A declaratory action is one in which some right, personal or proprietary which is actually infringed or threatened is sought to be declared in favour of the pursuer (English plaintiff), but where nothing is sought to be paid or performed by the defender (English defendant). Illustrations are Ds. of marriage, of bastardy, and of irritancy (loss of feu rights by non-payment of feu-duty for two full years). Ds. may be brought either in the Court of Session or in the sheriff courts, except that Ds. of marriage or nullity and Ds. relating to personal status may not be brought in the latter court.

Declension (Lat. *declentionem*, a turning or leaning away, i.e. the form assumed by words as they fall away from the nominative), in grammar the term signifies the inflections or changes a word receives according to its meaning or relation to other words in a sentence. English has no proper Ds., only traces of a dative and genitive, neither has it genders, except in pronouns of third person. Sanskrit has eight cases, Latin six, and Greek five. Latin cases are nominative, genitive, dative, ablative, accusative, vocative. Greek has no ablative; Sanskrit adds locative. Instrumental case-endings are gradually being dropped, and prepositions used instead, as in Fr. and Italian. Agglutinating languages are usually prolific in cases: the Finnish has 15, the Magyar has 20.

Declination. The angle between the magnetic meridian (vertical plane through axis of a compass needle placed at any point) and the geographic meridian (vertical plane through that point and the poles of the earth) at any point is called the D. of that point. The fact that a compass needle does not point true N. was first observed by Columbus in 1492. In Great Britain the compass needle points W. of true N. At London the D. is 16° 16' W., at Sydney 9° 36' E., and nil at St. Petersburg (1901), this being one of the few places where the compass needle points due N. This D. is not constant, but changes from year to year. This secular change was first

noticed by Burroughs in 1580; e.g. in that year the D. at London was 11° E., in 1657 it was nil, while in 1816 it had attained a maximum westerly value of 24° 30'. Since that date it has been gradually diminishing again; 320 years are required, it is computed, to give a complete cycle of secular changes in the D. See ISOCLINIC, AGONIC LINES, MAGNETISM, and DIP.

Declination, in astronomy, the complementary term to Right Ascension (see ASCENSION, RIGHT). The face of the heavens being regarded as a globe—the celestial globe—for the purpose of finding objects—stars, planets, etc.—on it, this globe is crossed by imaginary lines. These lines correspond to similar lines on the terrestrial globe, Right Ascension being the equivalent of longitude and D. of latitude. The D., therefore, of a star is its distance in degrees N. or S. of the celestial equator, or ecliptic.

Decoction (Lat. *de*, down, and *coquere*, to cook, boil), a term used in pharmacy for the process of forming a solution by boiling an organic drug in water. There are as a rule about 5 grains of drug to 100 cubic centimetres of D. The drug may sometimes be boiled in oil.

Decoration Day, or Memorial Day, is the annual holiday (May 30) appointed by all the Northern and some of the Southern States of America for the purpose of decorating the graves of, and commemorating, the soldiers who lost their lives in the Civil War.

Decorations, see MEDALS, ORDERS OF KNIGHTHOOD.

Decorations for War Services (Great War). The total number of decorations or honours conferred on members of British and Indian forces for services in the field and for services in connection with the War between August 1914 and the termination of hostilities was 254,158. This number was made up for the most part of decorations for services in the field, those 'in connection with the War' being the official description in the case of awards in respect of services during air raids, coastal bombardments, etc., or serving outside a recognised theatre of military operations. For these latter services some 13,000 decorations were given. Included in the total were also 5407 awards by way of promotion. The following were the numbers of the various awards made: V.C., 579; V.C. (bars) 2; G.C.B., 14; G.C.M.G., 22; G.B.E. (Mil. Div.), 5; K.C.B., 158; K.C.M.G., 197; K.B.E. and D.B.E., 74; C.B., 1052; C.M.G., 2659; C.B.E. (Mil. Div.), 1095; D.S.O., 8991; D.S.O. (bars) 784

(one of these was given for bringing down a Zeppelin airship in England); O.B.E. (Mil. Div.), 2664; B.E.O. (Civil Div.), 902; Red Cross and bars, 5986 (of which about 1000 were for 'field' services); M.C., 37,041; M.C. (bars), 3125; D.C.M., 24,571; D.C.M. (bars), 478; M.M., 115,429; M.M. (bars), 5965; M.S.M. and bars, 245,508; Medals, B.E.O., 424. The total number of officers and men who passed through the British Army during the War was approximately 6,000,000. In the South African war, when the total number of troops in the field was 448,435, the number of decorations or honours was 3714, made up as follows: V.C., 79; G.C.B., 3; K.C.B., 25; C.B., 292; G.C.M.G., 4; K.C.M.G., 8; C.M.G., 110; D.S.O., 1143; and D.C.M., 2050. In the Great War, the promotions for services in the field included three promotions to Field-Marshal's rank, viz. Lord Haig, Lord Allenby, and Lord Plumer, and for services outside a theatre of war, one such promotion, viz. that of Sir Henry Wilson. Among the remainder were fourteen promotions to the rank of General, fifty-three to Lieutenant-General; and 213 to Major-General.

Decort, Frans (1834-78), a Flemish lyrical poet. He published the well-known Flemish almanac, *Jan en Alleman*, and translated some of Burns' poems into his own tongue.

Decoy. This word has had a complicated history. It appears in English first in the seventeenth century in these senses, as 'coy' and 'coyduck,' from the Dutch 'kooi.' This word is ultimately connected with Latin *cavea*, a cave or hollow. The *de* at the beginning of the word is considered by some authorities as a corruption of duck-coy, by others as the Dutch article *de*, and by others as a corruption of the Dutch *eende-kooi*—*eende* being the Dutch for duck. The word was also used in a particular sense to denote a swindler, and also as the name of a game of cards, as early as 1550. A *D.* is, therefore, an inclosure for catching ducks or other wild fowls, a contrivance for catching and enticing wild fowl within range of a gun, hence any trap or enticement into a place of danger. *Ds.* are, as a rule, made on the following plan: Long tunnels lead from the sea, channel, or estuary into a pond or pool, these are covered with an arched net which gradually narrows in width. The ducks are enticed into this by a tame-trained bird also known as a *D.*, or 'decoy duck.' Trained dogs are also used. Once the ducks are along the narrow end of the channels or pipes they are easily caught. In America, and

sometimes in England, artificial *Ds.* are used. These are generally made of wood. The *D.* is placed on the water as if it were feeding. This attracts the other wild fowl within range of the concealed sportsmen. Many books have been written on the art of decoying ducks and wild fowl, the best being Sir W. Payne Sallmey's entitled *The Book of Duck Decoys*. There he has collected particulars of 173 English *Ds.*, a number, however, which was reduced to thirty-nine when he wrote in 1836. In its wider sense the word *D.* signifies any attempt to lead or lure by artifice into a snare with a view to catch, to entrap by any means which deceive. *D.* duck in a metaphorical sense signifies any person employed to *D.* other persons.

Decree, the term formerly given to any adjudication by a court of equity in contradistinction to a judgment in a common law (*q.v.*) court. The plaintiff formulated a written statement of his case in a long technical document called a bill, and the defendant put in a written answer on oath. The *D.* which was pronounced upon the bill and answer was framed so as to meet all the exigencies of the case. Since the Judicature Act, 1875 (*see also* EQUITY), an adjudication by a judge of the chancery division upon an action begun by originating summons is generally called a judgment, and an order made in a motion, petition, or *ex parte* application is referred to simply as an order. The term *D.* has now become more or less restricted to adjudications in administration, partnership, and foreclosure actions in the chancery courts. The term *D.* has also a well-known meaning in connection with interim and final orders in the divorce court, a *D. nisi* being the judicial pronouncement of a divorce or judicial separation to take final effect six months later as a *D. absolute*, if the king's proctor does not intervene. A similar distinction applies to a mortgagee's foreclosure action, the *D. nisi* being made absolute where the mortgagor does not redeem within the time allowed him by the court. The *Ds.* of the pope, which are called *decretales*, may be defined as decisions of the popes in matters of ecclesiastical law. The *Ds.* of the pope retained their authority as law till the fourteenth century, when the power of the holy see began to decline. From the fifth century the *decretales* of the popes have been collected, and there are several collections of them. (*See also* CANON LAW.)

Decrement, *see* INCREMENT.

Decrescent, or Décrément, a term applied in heraldry to the waning

moon, *i.e.* its horns turned to the sinister.

Dede Agach, Bulgarian port on Aegean sea, just W. of mouth of R. Maritsa. During the Great War it sheltered Ger. submarines, and in consequence was bombarded by British and Fr. fleets. Allied forces landed at D. A. on Oct. 28, 1918, which convinced the Turks, then negotiating an armistice, that Constantinople was threatened. D. A. was ceded to the Allies by the Treaty of Neuilly. Pop. about 3000.

Dedham, co. seat of Norfolk co., Massachusetts, U.S.A., situated on the Charles R., 10 m. S.W. of Boston. Fisher Ames was born here. The principal manufactures are woollen goods, carpets and pottery. Pop. 15,136.

Dedication, *see* CONSECRATION.

De Donis Conditionalibus (concerning conditional grants) **Statute**. This statute, passed in 1285, was intended to prevent the heirs to entailed estates from selling or otherwise disposing of their landed estates as soon as heritable issue was born to them. This they were enabled to do in spite of the intention of the grantor to tie the estate up in a strict line of descent, by reason of the judicial construction of a grant by A. to B and the heirs of his body 'as a grant of the fee simple (*i.e.* entire disposable estate) conditionally upon the birth of issue. The result of this interpretation was that the tenant-in-tail could not only bar his issue and the grantor's right to the reversion on failure of issue, but could evade his feudal services. The De Donis enacted that the will of the grantor should be observed, but failed in its purpose as soon as recourse was had to the practice of barring the entail by fines and recoveries (*see* COLLUSIVE ACTIONS).

Deduction, a term used in logic, and is commonly applied to the process of inference in passing to particular conclusions or consequences from general principles. It is the contrast of induction whereby we pass from particular data to the general principle which is underlying them.

Dee: (1) A riv., 70 m. long, in N. Wales and Cheshire, rises in Merioneth, and flows into the Irish Sea by way of a wide estuary. The dangerous rapidity with which the tide rises in this neighbourhood is told by Kingsley in his *Sands of Dee*. From Chester to the estuary there is a tidal canal 9 m. long. (2) A riv. in Aberdeen, rises in the Cairngorm Mts., near Ben Macdhui, and flows through Braemar, Ballater, Aboyne, and Kincardine, entering the sea at Aberdeen. Near

Braemar it forms the beautiful cascades, the Linn of D. Balmoral Castle is on its banks. The salmon fisheries are very valuable.

Dee, John (1527-1608), a mathematician and astrologer, b. in London, educated at Cambridge and Louvain. Edward VI. appointed him to a living and gave him a pension, consequently in Mary's reign he was persecuted and narrowly escaped with his life. Things changed, and under Elizabeth he obtained office as intelligencer. For nine years he was warden of Manchester College. During the queen's illness he was sent for, to consult with the German physicians on her recovery, and was afterwards commanded to draw up a geographical chart of crown lands discovered by Englishmen. This is now in the British Museum.

Deed (Lat. *factum*: Norm.-Fr. *fact*), an instrument in writing or print, upon paper or parchment, duly sealed and delivered, which operates either to pass an interest in property or to confirm a pre-existing contract, by which such an interest passes, or to bind a person hereafter to do, or abstain from doing, something. Ds. are of two kinds, indented and poll. The term 'indenture' implies that the D. is in two parts or similar copies, and that the two parts were cut in a serrated or irregular line so that when placed together subsequently their physical correspondence would evidence the authenticity of each copy. A D. poll is cut even at the edges, and usually contains but one part, being the D. of one person or party only. The modern mode of executing a D. is by signing, sealing, and delivery. The manner of delivering a D. is for the executing party to say 'I deliver this as my act and deed.' Sealing and delivery are essential to the validity of a deed, but signing only if expressly made so. A D. which is delivered to a third person, not a party to it, to be given up to the other parties upon the fulfilment of a condition is termed an *escrow*. The requisites to a valid D. in the U.S.A. are practically the same as in the case of any other contract, but the appointment of an attorney to execute a D. for another must as a rule be executed with the same formalities requisite to the D. itself. Seals, or whatever equivalent may be used therefor, are required in Alaska, Connecticut, Florida, Illinois, Maine, Massachusetts, Missouri, New Hampshire, New Jersey, New York, Pennsylvania, Virginia, and other states. In nearly all the states Ds. by corporations must be under seal.

Deems, Charles Force (1820-1893), American clergyman and religious

writer, was b. on Dec. 4, 1820, at Baltimore, his father being of Dutch extraction. Brought up in a pious atmosphere and educated at Dickinson College, he graduated as a Methodist Minister in 1839. The following year he was appointed agent for the American Bible Society in N. Carolina. At the University of N. Carolina he taught from 1842-48, in the Randolph-Macon College in 1849, and was president of the Greensboro Women's College from 1850-54. D. founded the Church of the Strangers in New York in 1868, and the American Institution of Christian Philosophy in 1881. His editorial works include the periodicals *The Watchman* and *Christian Thought*; he also wrote a life of *Jesus* in 1872; and was part compiler of *Hymns for All Christians*. He d. on Nov. 18, in New York.

Deemster, the title of the two chief judges in the Isle of Man, whose duty it is to pronounce doom or sentence. In Scotland, it was formerly the title of an inferior official attached to the High Court of Justiciary, who was also executioner, and who had to recite the recorded judgment.

Deep-sea Deposits, see DEPOSITION, DENUDATION.

Deep-sea Exploration, see ABYSSAL FAUNA, CHALLENGER EXPEDITION, DEPOSITION, DISCOVERY COMMITTEE.

Deer, or Cervidae, form a large family in the group Pecora of the ungulates, in which are also classed the giraffes, oxen, antelopes, sheep, and goats. The characteristic which distinguishes the deer from all other ruminants is the presence of antlers in the males; in the reindeer only they are common to both sexes, and in the genera *Moschus* and *Hydropotes* they are lacking. These antlers are deciduous, falling every year in the rutting season, and consist of bony processes of the frontal bone, covered while growing with a sensitive, vascular, velvety skin. The D. are known fossilised from the Miocene, and there are about sixty living species which inhabit Europe, Asia, and America. *Moschus*, the musk-deer, is an aberrant Asiatic genus, remarkable for the presence of a gall bladder as well as the absence of antlers; *Cervus* contains twenty-two well-known species, such as the wapiti, red D., fallow D., and the extinct Irish elk; *Rangifer*, the reindeer, and *Alces*, the elk, or moose, are circumpolar; *Cervulus*, the muntjac, is indigenous to Asia; *Hydropotes*, the water D., is a Chinese genus.

Deerhound, a dog resembling the greyhound in general appearance, from which it probably sprang. Ds. are used particularly in deer-stalking,

and are very quick runners with a keen scent. The chief points are as follows: Head, long and tapering, broadest at the ears, with a flat skull and a black nose (though the nose may be blue in the blue-fawn variety); ears, small, soft, and silky, set on high and folded back, and in colour dark, preferably black; neck, long, with a good mane, with sloping shoulders and a prominent nape; stern, long and tapering, well covered with hair; chest, deep and broad; loins, well arched and drooping towards the tail, with great breadth across the hips; legs, broad and flat; fore-



MUSK DEER

(Moschus)

legs, straight with arched toes. The height varies from 28 to 30 in., the female dogs being as small as 26 in.; weight from 80 to 105 lb., female dogs from 70 to 80 lb.

Deer-stalking, the method used in approaching deer without being observed by the animal. To 'stalk' is to approach unawares. In England this method of stalking the deer in order to shoot it is rarely adopted, but in Scotland it is generally in vogue. Deer-hunting in England is chiefly confined to the W., in the counties of Devon, Cornwall, and Somerset, and also in the New Forest. It is probable that stag-hunting on the Exmoors and Quantocks derives some of its fascination from their unique wildness and picturesqueness. In N. America the method of stalking is largely used.

Kinds of deer.—There are various kinds of deer, such as the wapiti or American deer, the lambu deer of India, the Himalaya deer, and the red deer, which is the kind generally

hunted in the British Isles. It is of a reddish-brown colour, while from the tail underneath the body the colour becomes lighter. The red deer has ever been known by his horns, which differ materially from those of all other kinds of deer. The horns consist of a beam from which points or processes project. The number of these points determines the age. The yearling deer has no horns, but at two years old a short spire is thrown out. The age of the deer can also be deduced from the impression of its foot in the ground. If the impression measures full two inches at the heel he is 'warrantable,' if more he is large, heavy, and old; and if less, he is too young. The tread of a hind is much narrower than that of the male, particularly at the toe, whilst the hart's is broad and round at the point. The mark of a deer's tread is called

forests were 'driven,' and the sportsmen occupied passes where they took their chance of sport, and this method is resorted to generally in the forest of Glengarry (Scotland) and in other places. But, generally speaking, the system has given way to the more exciting amusement of stalking. Deer, like other animals, seem to foresee change of weather. At the approach of a storm they leave the higher hills and descend to the low grounds, generally one or two days before the change. On the approach of a thaw they leave the low lands and go to the mountains. They never perish in snowdrifts, as sheep do, but keep the bare ground and feed on the tops of heather. When herds of deer are driven they follow each other in a line, so that when they cross the stalker it is customary for him to lie quiet and suffer the leaders to pass



LADIES HUNTING DEER

(Royal MS.)

his 'slot'; his haunt is termed his 'lair'; where he lies down, his 'harbour' or bed; where he rolls himself, his 'soiling pool'; and his breaking place over a hedge, his 'rack.' When he goes to water it is termed 'going to soil,' if he is headed back he is 'blanched'; and if he stops in a river or lies down in a pool during the chase it is called 'sinking' himself.

History.—The chase of the stag was considered one of the most princely and royal sports, and has existed from time immemorial; but whether it was conducted on its present lines until Queen Elizabeth's reign is doubtful. Historical records prove conclusively that there was kennelled at Simonsbath in this reign a pack of stag-hounds which hunted the deer on a similar system to that now in vogue. The method of stalking was not introduced until years later.

Methods of hunting.—1. By driving.
2. By stalking. Where the country was partially covered with wood, the

before he raises his rifle. If he were to fire at the first that appeared, he would probably turn the whole of them back. Or if he were to run forward injudiciously after a few had passed, the remainder, instead of following the others in a direct line, would not cross him except under particular circumstances and disposition of ground, but would bear off an end and join the others afterwards. When deer are hard pressed by a dog, they run in a compact mass, the tail ones endeavouring to wedge themselves into it. They will also run in this manner when pressed by drivers on the open moor. Deer, except in embarrassed situations, always run 'up' wind, and the instinct is strongly implanted in them. Thus they go forward over hill-tops and unexplored ground in perfect security, for they can smell the taint in the air at an almost incredible distance. On this account they are fond of lying in open quarries where the swells of the

wind come occasionally from all quarters. By clever arrangement on the part of the stalkers and by employing men in concealed positions to give them their wind, the deer may be driven 'down' wind, and in certain cases they may easily be sent by a 'side' wind to that side of the forest which they consider as their sanctuary. In large forests the method of stalking with the assistance of hill-men is generally adopted. These are placed at long intervals and help to drive the deer, if possible, against the wind. This method, however, cannot be adopted in small forests, as too frequent a disturbance would make the deer forsake the ground. Trained dogs are used to chase the deer after he has been wounded.

Weapons.—The destruction of the woods, the substitution of the gun for the bow and arrow, formed quite an epoch in the habits and size of the deer as well as in the mode of killing. The bow had one advantage over the gun, viz. that of being noiseless, so that a stalker well concealed might repeat shots without giving much alarm. In Sutherland firearms were unknown until about the latter end of the sixteenth century, when a large kind of blunderbuss, named by the people 'glasnabhean' was introduced. These, however, did not supplant the bow and arrow until after the middle of the seventeenth century. Spears were also formerly used, chiefly for killing wounded deer.

Deerfield, a town of Franklin co., Massachusetts, U.S.A., on the Connecticut and Deerfield Rs., 33 m. N. of Springfield; much visited by tourists; it comprises several villages, many of the houses dating from the eighteenth century. There is a collection of Colonial and Indian relics, and an attempt is being made to revive the old household arts and crafts. For many years D. was the frontier post of New England on the N.W. It was repeatedly taken by the Indians. On Feb. 29, 1704, twenty savages with painted faces and hideous acclamations broke into the room of John Williams, Minister of the Gospel in D., who reached up his hands to the bed tester for his pistol, uttering a short petition to God for aid, and put it to the breast of the first Indian who came up, but it missed fire and they bound him in his shirt, and with 100 of his neighbours, 300 Indians carried him off to Montreal, murdering nineteen by the way, 300 m., and burning D. before starting. Pop. 2882.

Deer, Old, a par. and vil. in Aberdeenshire, Scotland, 9 m. from Leterhead. The ruins exist of St. Mary's Abbey of Deer, which was founded in

1218-19. Near here Robert Bruce defeated the Comyns. Area 27,363 acres. Pop. 3717.

Deés, or **Deés-Magyaros**, a tn. in Hungary, situated 37 m. N. by E. of Klausenburg. Noted for its salt mines and saline springs. Pop. 10,000.

De Falla, Manuel, Spanish composer, was b. in Cadiz on Nov. 23, 1876. At the Madrid Conservatory he studied composition under Pedrell, the piano under Trago. In 1905 his 'La Vida Brava' won the prize offered by the Accademia de Belles Artes for a national opera. From 1907 to 1914 de F. lived in Paris, receiving friendly encouragement from Debussy, Ravel, Dupas, and others, but he returned to Spain at the beginning of the Great War. His works include 'Four Spanish Pieces for the Piano' (1909), 'Nights in the Gardens of Spain' for piano and orchestra (1916), and the ballets 'The Three-Cornered Hat' (1919), and 'Master Peter's Puppet Show' (1923).

Defamation, in law, signifies a statement about a person which tends to expose him to hatred, contempt, or ridicule, or to injure him in the way of his trade or calling, or to cause him to be shunned or avoided by his fellow men. Where the statement is in writing or other permanent form it is called a libel; spoken defamatory words are known as slander. A libel may give rise to a criminal prosecution as well as to a civil action for damages, especially where it has a tendency to provoke a breach of the peace. The truth of the libel is no defence in criminal proceedings, save where it is for the good of the public that the statement in question should be circulated. In civil proceedings truth or justification is a complete defence. In slander certain classes of statements are said to be actionable *per se*, that is, the plaintiff is entitled to damages whether he can prove that he has suffered damage or not. Words which afford a cause of action without proof of special damage, comprise four classes: (i.) Words spoken of a man in the way of his trade, business, profession, or calling; (ii.) words imputing to the person defamed a crime which if proved against him would render him liable to imprisonment or other bodily punishment as opposed to a mere fine; (iii.) words imputing that the person defamed is suffering from contagious disease, unfitting him for decent society; (iv.) words imputing unchastity or adultery to any woman or girl. It is no D. to publish in good faith any fair comment on a matter of public interest, or a correct and fair report of public, judicial, or

legislative proceedings; or to communicate in good faith to any person in a manner not in excess of the occasion any information or opinion which it is proper to communicate in the interest of that person, or of the person making the communication, or of the public. Some words are said to be absolutely privileged. Such are judicial utterances, statements made by witnesses on oath, words used by a member of parliament in parliament, or by a barrister in court in a case in which he has been engaged, and statements made before a select committee of the House of Commons. Other statements are said to enjoy a qualified privilege, *i.e.* there is no D. unless express malice can be proved. Reports of judicial and parliamentary proceedings belong to this class, and to be privileged must not only be fair and accurate, but must not have been published from any indirect motive. An apology is no defence to an action of libel or slander, but may go to mitigate the damages.

Default, the failure to perform some legal or quasi-legal duty. For example a defaulting trustee is one who makes a wrong use of money entrusted to him or who fails to render an account of same. In legal matters, the failure to fulfil or obey certain rules of court places a party in D. and judgment by D. may be given against him.

Defeasance, in law, is either a condition relating to a deed, which on fulfilment defeats the force or operation of the deed and renders it void, or is itself a collateral deed made synchronously with a deed of conveyance, containing conditions, on the performance of which the estate created by the conveyance may be defeated. Ds. of freehold estates must be by collateral deed. Ds. may also be of terms of years, executory interests, bonds, and recognisances. Ds. as to title are now never used in practice, the necessary conditions always being inserted in the body of the deed.

Defence, Committee of, *see* COMMITTEE OF IMPERIAL DEFENCE.

Defence of the Realm Act. This was the name applied to a series of legislative measures enacted at different periods of the Great War by the British govt. From the irksome and restrictive nature of some of the minor provisions the Act was familiarly known as DORA, this name being derived from the initial letters of Defence of Realm Act. The first of the series, known as the Defence of the Realm Consolidated Act, 1914, was passed on Nov. 27, 1914. It authorised the trial by courts martial, or in the case of minor offences by

courts of summary jurisdiction, and punishment of persons committing offences against such regulations as might be made during the War for securing the public safety and defence of the realm by the King in Council. Particular attention was directed to offences against the regulations designed: (a) to prevent persons communicating with the enemy or obtaining information for that purpose or any purpose calculated to jeopardise the success of the operations of any of His Majesty's forces or the forces of his allies or to assist the enemy; or (b) to secure the safety of His Majesty's forces and ships and the safety of any means of communication and of railways, ports and harbours; or to prevent the spread of false reports or reports likely to cause disaffections to His Majesty or to interfere with the success of His Majesty's forces by land or sea or to prejudice His Majesty's relations with foreign Powers. The Act also made it lawful for the Admiralty or Army Council to take over (a) the whole or any part of the output of any factory or workshop engaged in the manufacture of arms, ammunitions or warlike store; (b) such factories or workshops entirely. In May 1915, the Act gave wide powers to the state over the supply and sale of intoxicating liquors in certain areas.

Defender of the Faith, the title given to Henry VIII. by Pope Leo X. in 1521, to show the church's appreciation of Henry's defence of the papacy against Luther. It is now part of the regular title borne by the sovereigns of England, as seen on the coins of the realm where the wording is '... Fidei Defensor.'

Deferred Pay was a deduction from the pay of a soldier of the British Army whilst serving, which was paid to him in a lump sum when he finally left the service. It was abolished in 1898 on the introduction of 'messing allowance.' D. P. still exists in the British service, but only in the case of the non-European personnel of certain Colonial regiments, *e.g.* the Hong Kong Singapore Brigade. The rate of D. P. is £3 a year, or, in the case of periods of less than a year, 5s. for each completed period of thirty days.

Deffand, Marie de Vichy-Chamrond, Marquise du (1697-1780), one of the most brilliant letter-writers of the eighteenth century. In 1718 she married the Marquis du Deffand, from whom she soon afterwards separated. Her salon in the Rue St. Dominique was frequented by the most celebrated literary men of the day, and she made herself a conspicuous and notorious figure in Parisian society. In 1753 she became blind.

From 1766 she corresponded with Horace Walpole. Most of her correspondence has been published.

Defiance, cap. of D. co. in Ohio, U.S.A., 50 m. from Toledo. It manufactures dairy products, automobile bodies, cotton gloves, etc. A fort named D. was built here, 1794. Pop. 8818.

Deficiency Advances, see PUBLIC DEBT.

Defile, a long narrow pass or way in which troops can march only in file, or with a narrow front; derivation of the verb D., which means to march in a line or file; one by one, i.e. single or Indian file, or two by two, i.e. double file.

De Filippi, Cav. Filippo, Italian surgeon and explorer, was b. at Turin, 1869, and educated at the Medical School of Turin University. He held posts in surgery at the universities of Bologna and Genoa. Always a keen Alpine climber, he took part in the Duke of Abruzzi's Alaskan Expedition, ascending Mount St. Elias; and also in the expedition to the W. Himalaya and Baltoro Glacier in Karakoram. Under the auspices of the Italian and Indian Govs., he led a scientific expedition to Karakoram, 1913-1914. He has published works on all these expeditions—*The Ascent of Mount St. Elias*, 1900; *Ruvenzori*, 1909; *Karakoram*, 1912; *Himalaya, Caracorum e Turkestan Cinese*, 1924; also works on surgery and chemistry; *Italy's Protection of Art Treasures and Monuments during the War*, 1918; *The Relations of the House of Savoy with the Court of England*, 1920.

Definition, a brief and concise description of a thing by its properties; the process by which the common qualities of objects belonging to any given class are determined and expressed, so as to distinguish effectively between that class and other classes. According to old scholastic logic, a definition must give the mark of the genus (*nota generalis seu genus*) and of the species (*nota specialis seu differentia specifica*); genus denoting the distinctive qualities belonging to the whole class, and species marking out the difference of the part in question.

Deflagration, the rapid combustion of charcoal when heated with a nitrate or chlorate. If this occurs when a natural salt is heated with charcoal, the presence of a nitrate is indicated, since chlorates do not occur naturally. If the flame be violet, then potassium nitrate is indicated; while if it be yellow, sodium nitrate is present.

Defoe, Daniel (c. 1659-1731), author of *Robinson Crusoe*, was the son of a butcher of St. Giles, James Foe. Daniel himself changed his name to

the more aristocratic De Foe. At a dissenting academy he received a good education, and for a brief space was ambitious to become a dissenting minister, but the idea was renounced, and about 1685 he entered the hosiery business. It is known that he travelled in France and Spain, volunteered in King William's army in 1688, and made other unsuccessful attempts to embark on a business career, but about 1700 he definitely settled down in London to eke out a livelihood by journalism and vigorous pamphleteering. His rough but lively satire of 1701, entitled *The True-born Englishman*, was a spirited apology of the king's Dutch nationality, based on the folly of any people claiming



DANIEL DEFOE

purity of blood and in particular of the English, who are—according to D.—a most composite race. But it was his *Shortest Way with the Dissenters*, 1703, which first made him notorious throughout the country, for the House of Commons ordered the book to be burned; and the following description of him was advertised to ensure his speedy apprehension: He is 'a middle-sized, spare man, about forty years old, of a brown complexion, and dark brown-coloured hair, but wears a wig; a hooked nose, a sharp chin, grey eyes, and a large mole near his mouth.' This famous treatise was alleged to be written by a 'high-flying' churchman, who advocated a second Bartholomew's Day as the only effective means of getting rid of the obnoxious Nonconformists. The fact that the Church party at first accepted the remedy as a serious proposal naturally aggravated their indignation, when it became known that the whole pamphlet was a monstrous satire on their violent intolerance.

However, the 'unabashed Defoe' found the ordeal of thrice standing in the pillory fairly pleasant, as the entire populace was on his side. His release from Newgate, where he was confined, was due to Harley's intercession with the queen, 1704. The manly dignity of his poem, the *Hymn to the Pillory*, reveals D.'s character in its most favourable light. In 1704 appeared the first number of his periodical, the *Review*, which was issued three times a week, and which has never been surpassed for its combined qualities of diversity of matter, excellence of style, and rapidity of production. Over 5000 printed pages in all were compiled by D. himself for this periodical alone. Passing over his fine denunciation of indiscriminate charity (1704) and his elaborate *History of the Union*, 1709, the writer comes to his masterpiece, the immortal *Robinson Crusoe*, 1719. This amazing work of fiction, the verisimilitude of which impresses the most indifferent reader, was based on the four years' solitary residence on the island of Juan Fernandez of Alexander Selkirk, with whom D. became personally acquainted on his return. It is safe to say that no other writer of fifty-eight has ever produced a work comparable to *Robinson Crusoe* for the apparent artlessness of its unadorned yet intensely dramatic and arresting style, or for the irresistible reality of its atmosphere, which is, after all, one of pure romance. In a short essay it is impossible to mention one quarter of what this most prolific of authors wrote. In his *Appeal to Honour and Justice*, 1715, he attempted to apologise for his discreditable time-serving policy in politics. Under Godolphin he had accepted a regular salary as a staunch Whig (1706), but he unblushingly turned Tory so as to serve his old patron Harley when he returned to office, 1710. His *Memoirs of a Cavalier*, *Captain Singleton* (1720), and *History of the Plague* are all excellent illustrations of his power to work up circumstantial, but fictitious, detail into the most convincing of narratives. Lord Chatham believed the first to be a true history, and few would doubt but that the plague was described by an actual eyewitness, anxious only to leave behind him an authentic record. Yet D. was a child of seven when it occurred. Prosperity rewarded D.'s indefatigable activities, and he was able to build himself 'a very handsome house' in Stoke Newington. He was buried in Bunhill Fields. Perhaps his fecundity, his vivid imagination, his literary versatility and his impressive style have been somewhat obscured

by the unheroic, unromantic character of his moral standard (as exemplified in the realistic novel *Roxana*) and beliefs, as also by his offensive, though by no means unique, political inconsistencies. Lives by Chalmers, 1786, H. Morley, 1889, and T. Wright, 1894.

Deforcement, in Scottish law, denotes the forcible opposition or resistance made to an officer of the law who is at the time employed in executing a legal warrant.

De Forest, Lee, b. Council Bluffs, Iowa, Aug. 26, 1873. Graduated from the Sheffield Scientific School of Yale University in 1899. He has devoted his whole life to wireless, being a pioneer in the development of wireless telephony in America. He has taken out over 200 U.S.A. patents on radio telephony and telegraphy inventions. One of his most important is the 'Audion' detector, oscillator, amplifier, which made possible transcontinental telephone service both by wire and wireless. He has been vice-president of the Radio Telephone Co. since 1913.

Deformity, a condition arising from imperfect or perverted development of any structure of the body. Ds. may be congenital or acquired. The conditions giving rise to congenital abnormalities are studied under the name of Teratology. Acquired Ds. are due to accident, disease, the maintenance of abnormal conditions in the course of a trade or occupation, or deliberately contrived compression at the dictate of custom, religion, etc.

Defregger, Franz Ritter von (1835-1921), an Austrian genre painter. The picture that first made him famous was 'Speckbacher,' painted in 1868, a picture of the Hofer rising in 1809. After this came 'The Dance,' 'The Prize Horse' and genre pictures of Tyrolean peasant life. In 1876 he painted his famous 'Victors' Return,' and in 1898 his masterpiece, 'Hofer going to his Death.'

Degas, Hilaire-Germaine Edgard (1834-1917), a Fr. painter and engraver, was b. at Paris and educated at the Ecole des Beaux-Arts. He was one of the most celebrated impressionist painters. His subjects include portraits, racehorses, ballet girls, and the circus, and he painted in oils, water-colours, pastels, and he was also a lithographer. Of his works the chief are: 'War in the Middle Ages' (Salon); 'Steeplechase'; 'Family Portraits'; 'Ballet of La Source'; 'Portraits of Criminals'; 'Races'; 'Interior of a Cotton-Broker's Office at New Orleans'; 'The Rehearsal.' At the Luxembourg Gallery at

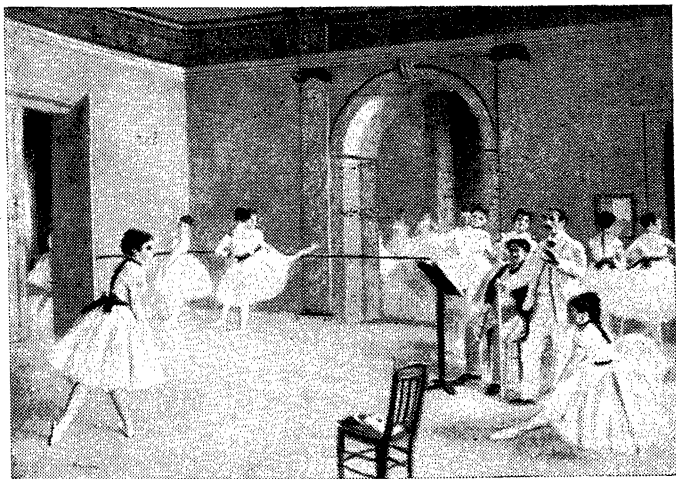
Paris are the 'Danseuse sur la scène'; 'Danseuse nouant son brodequin'; 'Un Café, Boulevard Montmartre'; and 'Les Figurants.'

De Geer, Louis Gerhard, Baron (1813-96), a Swedish statesman who will be remembered for his reform of his country's representative system (which had existed from the later Middle Ages) to a bicameral elective system in 1865-66. Amongst De G.'s books, some of which are written in fine style, are: *Minnesteckning öfver A. J. v. Hopken*; *Minnesteckning öfver Hans Järta*; *Minnesteckning öfver B. B. von Platen*; his own

Humaines, 1802; *Histoire de Philosophie*, 1803; *Du Perfectionnement Moral*, 1824; and *Education des Sourds-Muets de Naissance*, 1827.

Deggendorf, a tn. in Lower Bavaria, rich in churches: the church of the pilgrimage to the Holy Sepulchre was begun in 1337. A favourite summer resort in beautiful scenery. There is a trade in timber, cattle and corn, also a school of domestic economy for English girls. Pop. 7840.

Dégoutte, Joseph (b. 1866), Fr. general who gained distinction in the Great War when commanding the Fr. Sixth Army during the Ger. retreat



'THE REHEARSAL' BY DEGAS

[Druet

Minnen, invaluable for its historical information; some novels and essays. See Carl Gustaf Malmström, *Historiska Studier*, 1897.

Degeneration, Physical, see PHYSICAL DETERIORATION AND BIOLOGY.

De Gerando, Joseph Marie, Baron (1772-1842), a Fr. statesman and author of philosophical and philanthropic works, was b. at Lyons. He went to Germany in 1797 and became a private in Massena's army, during which time he wrote *Des Signes et de l'Art de Penser*. He was afterwards appointed Secretary-General to the Ministry of the Interior by Napoleon, and later Vice-President of the Council of State. Of his works the most important are: *De la Génération des Connaissances*

from the Marne in July and Aug. 1918. He served in the Chinese War of 1900, and before the Great War held an important post in Morocco. Commanded the Moroccan Division in the earlier part of the Great War. Was commander-in-chief of Fr. troops in Occupation of Rhine from 1919 to 1924. Member of Supreme Army Council.

Degree of Latitude, the length along a meridian such that the difference between its N. and S. ends is one degree (360th part of the circumference of a circle). A degree of longitude is the length between two meridians that make an angle of one degree at the poles.

Degrees in Arts were first granted in the Middle Ages. Even in Roman

times the expression 'arts' or 'liberal arts' was freely applied to certain branches of learning, and about 1200 A.D. those who devoted themselves to the study of philosophy and science in contradistinction to theology, medicine, and law were said to belong to the Faculty of Arts. Their course of study embraced the 'Trivium,' that is, grammar, dialect, and rhetoric, and the 'Quadrivium,' which included arithmetic, geometry, astronomy, and music. For such were the divisions of knowledge handed down by the schools of the Roman empire. In the twelfth and thirteenth centuries the earliest universities, such as those of Bologna, Paris, Oxford and Cambridge, began to develop and it was found necessary to confer some recognised licence on those eligible to teach. Originally, therefore, the degree was a certificate endowing its owner with the privilege of teaching in public at the various centres of learning. The pope was regarded as the final giver of every degree, and no community of pedagogues, however learned, could call themselves a university unless they had obtained the papal recognition. Thus in Paris the Master of Arts degree was primarily nothing more than a formal permission from the chancellor of Notre Dame Cathedral for its holder to take his master's chair among his brother professors and to embark on his pedagogic career. Candidates for degrees in arts were obliged even so late as the eighteenth century to take part in dialectical discussions or disputations—a performance known as the keeping of his 'Act.' On three occasions the aspirant was obliged to read a Latin thesis and then to enter into a debate, conducted on a syllogistic form, with a doctor of the faculty and one or more opponents. At first the subject for discussion was almost invariably taken from Aristotle, but later it was based, for one of the occasions at least, on the *Principia*, or some other treatise of Newton. The last vestige of this system of 'disputation' or 'Act' for the B.A. degree finally disappeared from Cambridge University in 1838, when written examinations became the one recognised test. Gradually the latter had superseded the disputations, as it was found impossible by this means adequately to examine the knowledge of the student in such subjects as mathematics. It soon became the rule in leading universities that no matriculated student could attain to a degree unless he had conformed to regulations regarding attendance at lectures and residence in the university. At Paris in the fifteenth century a course of four

years' study was one of the qualifications necessary for the master in arts, the minimum period for a degree in most universities to-day being three years. In Cambridge an honours degree in arts is now called a 'tripos,' a name originating from the fact that on the day for conferring new degrees it was the custom for an old bachelor to sit on a 'tripos' or stool and to enter into a mock and humorous disputation with his new associates. The Bachelor of Arts degree is of comparatively recent growth, and in Scottish universities there is an M.A. but no B.A. degree. Mathematics and natural philosophy, classics, and mental science and English literature are the three departments, proficiency in any of which entitles to an M.A. degree. Modern languages, history, literature, mathematics, and classics are the recognised subjects for arts degrees in Oxford, Cambridge, and London universities, etc., to-day. Many universities give degrees in arts *honoris causa* to men who have distinguished themselves in statesmanship, letters, art, science, etc., but who have not earned the distinction by passing the qualifying examinations. In some universities the M.A. degree may be bought. Most of the universities, except Oxford and Cambridge, now admit women to their degrees in arts, London and Dublin being pioneers in this reform. Other arts degrees besides those already mentioned are LL.A. of St. Andrews (Lady Literate in Arts), Ph.D. (Doctor of Philosophy), the crowning distinction in American universities; Ph.B. (Bachelor of Philosophy); A.M. (*Artium Magister*, the American Master of Arts); A.B. (*Artium Baccalaureus*, the American Bachelor of Arts); Litt. D. (Doctor of Literature); B.Litt. (Bachelor of Literature); D.Phil. and B.Phil. (Doctor and Bachelor of Philosophy).

Degrees in Commerce, *see* under COMMERCIAL EDUCATION.

Degrees in Law, *see* under LEGAL EDUCATION.

Degrees in Science are of comparatively recent institution. They are of two kinds: Bachelor of science (B.Sc.), and doctor of science (D.Sc.). Oxford University has a 'Final Honour School' in Natural Science, and a B.Sc. may be taken by original research or dissertation. At Cambridge the tripos may be taken in natural science and in mechanical science (engineering). At London a B.Sc. degree may be taken by men and women, *internally*, i.e. when a specified number of lectures have been attended at a recognised school of the university, or *externally*, by

home students. The provincial universities and colleges, *e.g.* Manchester, Sheffield, Leeds, etc., have made a special point of scientific study. At the Armstrong College students who have passed the required examinations in engineering, mining, manufactures, or agriculture, are admitted as associates in physical science of the Durham University.

De Gubernatis, Angelo (1840-1913), an Italian author and orientalist, was b. at Turin. He was appointed professor of Sanskrit at Florence in 1863, and at Rome in 1891. His works include: *Zoological Mythology*, 1872; *Storia comparata degli usi Natalici*, 1872; *Mitologia Vendica*, 1875; *Mythologie des Plantes*, 1878; *Ricordi biografici*, 1873; *Dizionario biografico degli Scrittori contemporanei*; and *Storia universale della Letteratura*.

Dehra, cap. of the Dehra Dun dist. in the United Provs., India. Is prettily situated in the midst of a mountain valley 2300 ft. above sea-level. The temple of its founder, Guru Ram Rai, at the end of the seventeenth century, forms the chief ornament of the tn. Here are the Indian Forest College, the Prince of Wales Military College, and the headquarters of the Viceregal Bodyguard. D. enjoys a great reputation as a hill resort, and has a large resident pop. of Anglo-Indian and Indian pensioners. Pop. (1921) 47,273.

Dehra Dun, a dist. in the United Provs., India, consists of a broad but barren valley, deluged in the unhealthy rainy season and dried up in the summer. The extensive woods consist mostly of pines, and on the slopes of the Himalayas of cedars and silver firs. The 180,000 natives, mostly Hindoos, cultivate maize, millet, sorghum, and rice.

Deianeira was the daughter of Althæa and Ceneus, and the sister of Meleager. Hercules and Achelous fought for D.; Hercules was victorious and so claimed her for his wife. She was the unwilling cause of her husband's death by sending him the robe which was presented to her by the centaur Nessus. The robe was supposed to preserve love, but in reality it was poisoned. When Hercules, through having won the robe, was dead, D., in despair, put an end to her own life. See Jebb, introduction to the *Trachiniae* of Sophocles.

Deification, see APOTHEOSIS.

Dei Gratia (Lat., 'by the grace of God'), an expression supposed to have been first used at the council of Ephesus (431 A.D.), and signifying a complete dependence on the will of God. Until the fifteenth century it was used only by the clergy after their names, as an expression of depen-

dence. After that date it was assumed by kings, but the signification changed from that of dependence to assertion of power and the idea of the theory of the 'divine right' of kings.

Deiocos, or **Dajaukku**, was the first king of Media, and according to Herodotus, reigned from 709 to 645 B.C., though Nöldeke gives from 700-647 as his dates.

Deiotarus (d. 30 B.C.), a tetrarch of Galicia, received from the Roman senate the title of King of Galicia and Armenia, in return for his services during the Asiatic wars. In the civil war he joined Pompey. Cæsar took from him Armenia, and left him only his title. He was accused of plotting against Cæsar's life, and Cicero defended him in an oration still extant.

Deiphobus, the son of Priam and Hecuba. He married Helen after the death of Paris, and was killed by Menelaus at Troy.

Deira, an ancient Anglian kingdom, extending from the Tees to the Humber. With its N. neighbour, Bernicia, it was afterwards merged in the kingdom of Northumbria.

Deirdre, mythological heroine of one of the three tragic Gaelic poems of Ireland. Destined to be the bride of King Conchobhar, D. falls in love with Naisi (or Noisi), son of Usnagh, and is protected by him and by his brothers. The king slays the three young men, and the poem, *Deirdre's Lament over the Sons of Usnagh*, recalls the happy days spent with Naisi in Alba (*i.e.* Scotland), on Lough Etive and contrasts it with her present misery in the house of the King. *Irish Texts*, i, pp. 77-81, and consult also Kuno Meyer's *Ancient Irish Poetry*.

Deir-el-Kamr, a tn. on the W. side of Lebanon, Syria, on healthy, fruitful terraces, with about 8000 inhabs. (Maronites, Druses and Jews) who produce wine and silk.

Deism (from Lat. *deus*, god), strictly speaking the belief in a god, synonymous with Theism as opposed to Atheism. The term is generally used, however, in opposition to revealed religion, and especially to Christianity. Thus Deists are those who believe in a personal God, the Creator of the universe, but regard him as detached from the world to which he has made no revelation. The term is still further restricted to the movement which gained ground in England at the end of the seventeenth century, and flourished during the former half of the eighteenth century. It was characterised by a strong aversion from Christianity, and a reliance on the *lumen nature*. It called forth many defenders of

orthodoxy from among the Queen Anne prelates, and it had but little final effect on Eng. thought. It considerably influenced Voltaire, and had much in common with the later Ger. rationalism. Lord Herbert of Cherbury is regarded as 'the father of Eng. D.,' and the other chief names in the movement are Charles Blount, Matthew Tindal (author of *Christianity as Old as the Creation*), William Wollaston, Thomas Woolston, John Toland (author of *Christianity not Mystical*), Lord Shaftesbury (third earl), Viscount Bolingbroke, and Anthony Collins.

Deismann, Gustav Adolf (b. 1866), a Protestant theologian, b. in Langenscheid. He became professor at Heidelberg (1897), and at Berlin (1908). Amongst D.'s publications are: *Johann Kepler und die Bibel*; and *Bibelstudien, Neue Bibelstudien*, both of which are translated by Grieve.

Déjazet, Pauline Virginie (1797-1875), a Fr. actress, b. at Paris. She went on the stage when she was five years of age, played at the Théâtre des Jeunes-Élèves, in 1821 at the Gymnase, in 1834 at the Théâtre du Palais-Royal, from 1844-49 at the Variétés, and at the Théâtre Déjazet.

De Kaap, see KAAP.

De Kalb, a city of De Kalb co., Illinois, U.S.A., 60 m. W. of Chicago. Barbed wire was invented and is still made here, also pianos and wagons. There is a trade in canned vegetables, etc. Here is the Illinois State Teachers' College. Pop. 8545.

Dekker, Edward Douwes (1820-87), a Dutch writer, who became assistant-resident at Lebak, W. Java. He began to protest against the abuses of the Dutch colonial system, and being threatened with dismissal, he resigned his post, and returned to Holland. His fame as author was made by his brilliant romance *Max Havelaar*, exposing the scandals of the Dutch gov. in Java.

Dekker, Thomas (c. 1570-c. 1641), an Eng. dramatist and pamphleteer, b. in London. But little is known of his life. His name is often mentioned in Henslowe's *Diary* in the last years of the sixteenth century as being in receipt of loans and payments for writing various plays in conjunction with Ben Jonson, Drayton, Wilson, Chettle, and others, and he seems at that period to have been much in request as a playwright. Henslowe also mentions the fact of having advanced him forty shillings to release him from prison, where he was confined for debt, and later, 1613-16, he was again in prison from the same cause. He is mentioned in the *Diary* for the first time on Jan. 8, 1597, as having sold a book, i.e. the manu-

script of a play. He has been called the Dickens of the Elizabethan period, though in life and character the two men were utterly unlike. D. wrote without any thought of reforming things he saw, wishing only to depict them; he had the great power of being able to make imaginary figures seem real, though often writing under great pressure. From his plays a very good inference is drawn of the interesting events that happened at that time, such as the interiors of shops, houses, and taverns, and the haunts and habits of vagabonds, and other London life. His plays contain a few charming songs, which show that he must have been



THOMAS DEKKER

possessed of very great lyrical talent. His best plays include: *The Shoemaker's Holiday*, 1600; *Old Fortunatus*, 1600; *The Honest Whore*, in two parts, 1604-30; *The Virgin Martyr*, 1622, and *The Witch of Edmonton*, published 1658. In 1603 he wrote *The Patient Grissel* with Houghton and Chettle; with Webster in 1607, *Westward Ho!* *Northward Ho!* and *Sir Thomas Wyatt*; and *The Sun's Darling* with Ford, published in 1656. His best plays were edited by Ernest Rhys in the Mermaid series.

De la Bèche, Sir Henry Thomas (1796-1855), an Eng. geologist, who in 1851 founded the Museum of Practical Geology, and the School of Mines.

De Laborde, Henri François (1764-1833), a Fr. general, the son of a baker, b. at Dijon. He joined in the wars of the Revolution on the side of Napoleon. In 1793, after the battle at Rhein-Zabern, he was made general. He was for a time governor

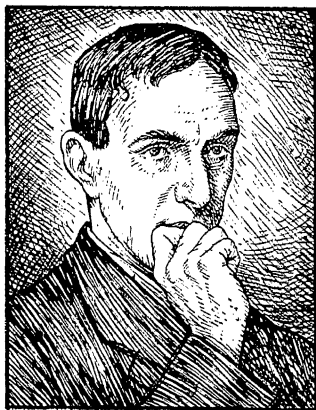
of Corsica. In 1812 he served with Napoleon in the Russian War.

Delacroix, Ferdinand Victor Eugène (1799-1863), a Fr. historical painter, leader of the Romantic movement, b. at Charenton, near Paris, his father being foreign minister under the Directory. In 1845 he was employed to decorate the library of the Luxembourg, and the ceiling of the Salon de la Paix in the Hôtel de Ville, 1853.

De Koven, Henry Louis Reginald (b. 1861), an American composer, b. at Middletown, Connecticut. First served as a musical critic: studied music in Europe; among his compositions are: *Don Quixote*; *Maid Marian*; *The Golden Butterfly*; *The Wedding Night*; *The Three Dragons*.

Delagoa Bay, see LOURENÇO MARQUES.

Delagrange, Léon (d. 1910), was one of the first aviators in Europe. He began by flying on a biplane, and was an exhibitor of one in 1908. For some time before his death he flew on a monoplane, attaining a speed of 50 m. an hour on this machine at Doncaster. He was killed while flying before a crowd of people at the Croix d'Huis aerodrome on Jan. 4.



WALTER DE LA MARE

De la Mare, Walter, poet and novelist, was b. at Charlton, in Kent, on April 25, 1873, of Scottish and Huguenot descent. Educated at St. Paul's Cathedral Choir School, he entered the city office of the Anglo-American Oil Co. in 1889, but always devoted his leisure time to his writings. Under the pseudonym of 'Walter Ramal' (an anagram on

part of his surname), he published *Songs of Childhood* in 1902, and two years later his first novel, *Henry Brocken*. In 1906 he produced a volume of *Poems*. The story of *The Three Mulla-Mulgars* and the psychic novel *The Return*, which won the Polignac prize, appeared in 1910. Then came in succession *The Listeners and other Poems* (1912), *Peacock Pie* (1913), *Motley and other Poems* (1918), *Flora* (1919), and *Collected Poems, 1901-18* (1920). In 1921 he produced varied works: *The Veil and other Poems*; *Crossings*, a play; and a story, *The Memoirs of a Midget*. *The Riddle and Come Hither* appeared in 1923, *Ding Dong Bell* in 1924, *Broomsticks*, 1925, *The Connoisseur*, 1926, *Told Again and Stuff and Nonsense*, 1927; *Stories from the Bible*, 1929. For his beauty and mysticism he is frequently compared with Coleridge and Blake, and for his symbolism with Maeterlinck. See the critical study by Forrest Reid, 1929.

Delambre, Jean Baptiste Joseph (1749-1822), the celebrated Fr. mathematician and astronomer. He early attracted the friendship of the Abbé Delille, and obtained a place in the College of Plessis. Afterwards he entered the College of France, where he taught and studied under Lalande, and on the latter's death succeeded to the Professorship of Astronomy. With Méchain he was appointed by the Fr. gov. to measure the arc of the meridian between Barcelona and Dunkirk. His chief work was the *Base du Système Métrique Décimal*. He also wrote many astronomical treatises.

Deland, Margaretta Wade, American authoress, b. Feb. 23, 1857, at Allegheny, Pa.; daughter of S. Campbell. She was educated at Pelham Priory, a school kept by Eng. women near New York; afterwards going to Cooper Union, New York City. She taught industrial design in the Girls' Normal College, N.Y., 1878-79. She has written many tales, the chief being: *John Ward, Preacher*, 1888; *Story of a Child*; *Mr. Tommy Dove, and other Stories*; *Old Chester Tales*; *Dr. Lavender's People*; *The Common Way*, 1904; *The Awakening of Helena Ritchie*, 1906; *An Encore*, 1907; *The Iron Woman*, 1911; *The Voice*, 1913; *The Hands of Esau*, 1914; *Around Old Chester*, 1915; *The Rising Tide*, 1916; *The Vengeance Flame*, 1922; *New Friends in Old Chester*, 1924; *The Kays*, 1926.

Delane, John Thaddeus (1817-79), an editor of the *Times*, was perhaps the most distinguished journalist of his day. He was offered the editorship of the great newspaper when he

was but twenty-four years of age, and with but little hesitation he took up the difficult and onerous position, which he held until within two years of his death. He devoted his whole life, and all his energy, to the interest of the *Times*, and under his direction it attained so high a position that, even under the altered conditions of journalism, no organ of public information, however great its circulation, can hope easily to rival it. A regular diner-out, D. knew everybody, and many of his acquaintances were of great use to him in his professional career. He seldom wrote for his paper, but was a rigorous censor of his contributors. His biography was written by A. I. Dasent, 1908.

Delano, Jane Arminda (1862-1919), American nurse who distinguished herself in the Great War. Born on March 12, at Townsend, New York, she first trained as a teacher, then later as a nurse at the Bellevue Hospital School of Nursing in 1884. From 1887 to 1906 she superintended Jacksonville Hospital during an epidemic of yellow fever, acted as visiting nurse to a mining camp, directed a Girls' Refuge, and afterwards the Bellevue Hospital. During the Spanish-American War she became interested in Red Cross work, and from 1911 devoted her life to its organisation. In 1918 she was made director of the Department of Nursing, supplying nurses to the Army, Navy, and U.S.A. Public Health Services. For her services in France she was awarded the Distinguished Service Medal and the American Red Cross. On April 15, she d. from mastoid abscess at Savenay, but was brought home to America for burial.

Delany, Patrick (c. 1685-1768), a divine, was a popular Irish preacher, who became an intimate of Swift when that great man returned to his native country after the death of Queen Anne. It was his affection for the dean of St. Patrick's that caused him in later life (1754) to publish his *Observations upon Lord Orrery's Remarks upon the Life and Writings of Dr. Jonathan Swift*, in which he rebutted certain damaging statements made by Orrery. In 1743 D. married Mrs. Pendarves, who wrote her reminiscences, which were issued posthumously.

De la Ramée, Louise, see OUIDA.

Delarey, or De la Rey, Jacobus Herklas (1847-1914), an assistant commandant-general of the Transvaal forces in the Boer War from 1899-1902. In 1899 he opposed Lord Methuen at Belmont, at Enslin, at Modder R., and at Magersfontein. In 1900 he defeated General Clements

at Nootgedacht; was himself repulsed near Ventersburg in 1901, at Vlakfontein, and at Moedwill, where he made an attack on Major-General Kekewich. In 1902 he captured Von Donop's convoy near Wolmarastad, also Lord Methuen's at Tweebosch. On March 31, 1902, he was defeated by General (later Lord) Kitchener. He joined the Boer peace delegates on April 9 at Klerksdorp, and signed the conditions of surrender at Vereeniging, May 31. In Sept. he came over to England with Louis Botha and Christian de Wet. He became a member of the Transvaal Assembly, and later a senator of the Union of S. Africa. He was shot dead near Johannesburg by a police patrol who mistook his car for that of a criminal gang, Sept. 16, 1914.

De la Rive, Auguste Arthur (1801-1873), Swiss physicist; b. Oct. 9, at Geneva; son of Charles Gaspard de la Rive, Professor of Pharmaceutical Chemistry there. At twenty-two became Professor of Natural Philosophy in Geneva Academy. Investigated temperature of earth's crust. Invented electro-gilding. Published a complete treatise on electricity. Died, Marseilles, Nov. 27.

Delaroche, Hippolyte, called Paul (1797-1856), a Fr. painter. He studied under Gros, and, like Delacroix, revolted early against the classicism of the school of David. He soon gained popularity, and met with far less opposition than Delacroix. In 1827 he gained the decoration of the Legion of Honour for his 'Capture of the Trocadéro,' and in 1833 was made professor at the Ecole des Beaux-Arts. After a visit to Italy, he received a commission in 1837 for a picture 27 metres long, to decorate the lecture theatre of the Ecole des Beaux-Arts. The picture represents the artists of his times assembled in groups on both sides of some white marble steps, at the top of which are seen all the sculptors and architects of the Parthenon. The figures are all admirably represented. It was finished in 1841, and in 1855 was badly damaged in a fire; D. set himself to repair the damage, but d. before he could do so. In 1835 he exhibited, 'Head of an Angel,' a study of Horace Vernet's daughter, whom he loved with an absorbing passion all his life, and from the grief caused by her death he is said never to have recovered.

De la Rue, Warren (1815-89), an Eng. astronomer, b. in Guernsey. He made a particular study of the solar conditions in their relation to electricity, and in his time greatly advanced the development of solar

physics and astronomical photography. His work, *Researches on Solar Physics*, was published 1869-70, and *On the Phenomena of the Electric Discharge* in 1881.

Delaunay, Louis Arsène (1826-1903), a Fr. actor, son of a wine-seller. He made his appearance at the Comédie Française as Dorante in Corneille's *Le Menteur*. Then began his long and brilliant career in young lovers' parts, in which he acted until sixty years of age. He played with success in the dramas of Victor Hugo and Molière, but it was especially in de Musset's plays that his talents found their best expression.

Delavigne, Jean François Casimir (1793-1843), a Fr. poet and dramatist, b. at Le Havre. At the age of sixteen he composed an ode on the birth of Napoleon's son. During 1815 he wrote a series of satires against the restoration of the Fr. monarchy, which was known as *Messéniennes*, and he wrote most of his principal plays between the years 1820 and 1830. They are: *Les Vêpres Siciliennes* (tragedy), 1818; *Le Faria*, 1821; *Les Comédiens*, 1820; *L'Ecole des Vieillards*, 1823, one of his best works; *Les Enfants d'Edouard*, 1833, and *Marino Faliero*, 1829. He wrote a hymn called *La Parisienne* for the revolution in 1830, and *La Varsoviennne* at the time of the Polish rebellion. Probably his best lyric was that called *La Toilette de Constance*. In 1832 he wrote a tragedy called *Scott's XI.*, which was founded upon Scott's *Quentin Durward*. In 1835 *Don Juan d'Autriche* was produced. A collection of his works was published in 1885.

Delaware, a S. Atlantic state, and one of the original thirteen states of the U.S.A. Except for Rhode Is. it is the smallest, having an area of only 2370 sq. m. Its boundaries are Pennsylvania on the N. and N.W., D. river, the largest in the state, D. Bay, and the Atlantic Ocean and New Jersey on the E., and Maryland on the S. and Maryland and Pennsylvania on the W. The hilly country of the N. yields some minerals, including kaolin, granite, brick and tile clays. The forests of cypress swamp in the S. once afforded excellent timber. Brandywine R. is famous for the revolutionary battle of 1777. Some of the tidal salt marshes along the bank have been reclaimed by dykes, and therefore rendered tillable. Agriculture is the chief industry of the state, Indian corn, wheat, oats and potatoes being the crops most cultivated, while the hay harvest brings in a large share of revenue; 85 per cent. of the State's total acreage is in farms. It ranks

second in the U.S.A. in tomato-packing. Several varieties of fruit are also grown profitably, notably peaches. The fisheries include shad, oyster, crab, and sturgeon. Clay products include brick and tile, and stone, sand, and gravel are quarried. D. contributes only a decimal percentage of the whole U.S.A., less than any other state. Iron, steel, and leather industries all flourish, the principal manufacturing centre being Wilmington, which, like New Castle and Lewes, has also an excellent harbour. D. has a good railroad (of over 325 m.), and therefore transportation facilities, and the state is crossed by a canal connecting D. and Chesapeake bays. Settled first by Swedes and Finns from Christiania in 1638, D. passed into the hands of the Dutch in 1655, and nine years later was surrendered, together with New Amsterdam (New York), to the Eng. In 1682 William Penn obtained proprietary rights in the state, which finally procured a constitution in 1776. Although a slave state up to 1861, D. was not in favour of secession, and sent many men to join the ranks of Lincoln. D. is a very progressive state, and recent legislation has been in favour of the sterilisation of mental defectives and habitual criminals. Compulsory teaching of the evils of alcoholism is given in the schools. The state possesses a small university (1833) of approximately 700 students, which is situated in Newark. The name of the state is derived from that of the British colonial governor, Thomas West, Lord De la Warr (1577-1618). The pop. of D. in 1930 was 238,380. The prin. cities are Wilmington, 106,597, Dover, 4800, New Castle, 4131.

Delaware, co. seat of Delaware co., Ohio, U.S.A., on the Olentangy R.; it has sulphur and iron springs in the vicinity, and is the seat of Ohio Wesleyan University (1844) and many seminaries. Rutherford Hayes was b. here. Pop 8675.

Delaware, Lackawanna and Western Railroad Company, The, is an American co. controlling close on 3000 m. of railway serving the states of New Jersey, Pennsylvania and New York. The main line connects New York and Buffalo. In its early days the company was principally a freight carrier, but latterly the passenger traffic has been considerably developed, particularly in the suburban lines from New York.

Delaware River, U.S.A., is formed by two branches which rise in the W. Catskills of New York and unite at Hancock, D. co. Hence it flows E. to Jersey, where it deflects through the Kittatinny Mts., forming

the D. Water Gap; 40 m. below Philadelphia it expands into D. Bay, an estuary 11 m. wide at its entrance and 60 m. long, which, owing to its breakwater, constitutes a spacious harbour. Length of river, 410 m.

De la Warr, Thomas West, Baron (1577-1618), colonial governor of America, b. in Hampshire. In 1602 he succeeded to the titles and estates as the third (counting from Lord West, the second founder) or twelfth (counting from Roger de la Warr, the first founder) baron. In 1609 he was a member of the Virginia Company Council, and was appointed governor and captain-general of Virginia for life. He sailed in 1610 with three ships and one hundred and fifty settlers equipped at his own expense and landed at Jamestown. He was a just and efficient ruler, rebuilt Jamestown, and constructed two forts. In 1611 he returned to England, but hearing of the misrule of his deputy, he set sail for Virginia, but *d. en route*. See DELAWARE.

Delbrück, Martin Frederick Rudolf (1817-1903), a Prussian statesman, b. in Berlin. He was set in charge of the Commercial and Industrial Department of the Board of Trade in 1859, and did much to create the Zollverein. He helped Bismarck considerably before the Franco-Prussian War in holding together the S. Ger. states, and during the war was of the greatest service at home. Later he differed somewhat from Bismarck on the Tariff question. He resigned in 1876 and sat as a member of the Reichstag.

Delbrück, Hans (b. 1848), a Ger. historian, b. at Bergen. He was appointed in 1896 professor at the University of Berlin. Among his works are lives of Frederick the Great, Napoleon, Moltke, and works on military strategy.

Delcassé, Théophile (1852-1923), a Fr. statesman, b. Nov. 1, at Pamiers, Ariège. He was a most prominent figure in European politics for twenty-five years. He helped to bring about the Franco-Russian alliance, was one of the architects of the Franco-Italian *rapprochement*, and was largely responsible for the Entente Cordiale. He was thirteen times a Minister and Foreign Minister for seven years continuously. He first read for the Bar and then joined Gambetta on the staff of the *République Française*, writing articles on foreign policy. Began his political career as deputy for Foix in 1889 and was Colonial Minister in the Dupuy cabinet, 1894. He was made Minister of Foreign Affairs in 1898 under Brisson, in which year he settled the differences between Great Britain and France

over the Fashoda (*q.v.*) question. He held the same position in the Dupuy (1898), Waldeck-Rousseau (1899), Combes (1902), and Rouvier (1905) cabinets. From the outset, it was his settled policy to lift France from the state of weakness and isolation in which it was the aim of Germany to keep her ever since the Treaty of Frankfurt, and it has been said of him by Gauvain that his diplomacy saved his country. In April 1905 he sent in his resignation from office, but this he was induced to withdraw. Two months later, however, he again resigned, his resignation being practically demanded by Germany as an alternative to war, an alternative which the Rouvier cabinet did not feel justified in accepting. He was responsible for the fall in July 1909 of the gov. of M. Clemenceau after a dramatic verbal duel in the Chamber on the subject of the navy. He became Minister for the Marine under M. Briand, 1909, and continued to hold office under MM. Monis and Poincaré. He was on the committee which, in 1911, investigated the general conditions of the Fr. navy. As mediator between the U.S.A. and Spain, he was entirely successful and peace between these two nations was concluded in Paris. In Feb. 1913 he was appointed ambassador at St. Petersburg, the appointment being generally regarded as indicating increased emphasis of the Dual Alliance, more especially directed against Ger. ambitions; and on his return, in February 1914, he brought back a marked foreboding of Ger. aggressive designs. He negotiated the famous Pact of London, by which the Allies agreed only to make peace overtures by common agreement and not separately. He was not successful in an attempt to revive the Balkan entente, and on Oct. 14, 1915, he retired from office after a dispute with the Fr. cabinet on the Salonika expedition and thereafter dropped out of Fr. politics, mainly through disappointment when Bulgaria entered the war. There can be no doubt of his intense devotion to the service of his country. As an orator he eschewed rhetoric but employed language which was classical in its purity. He *d.* on Feb. 21.

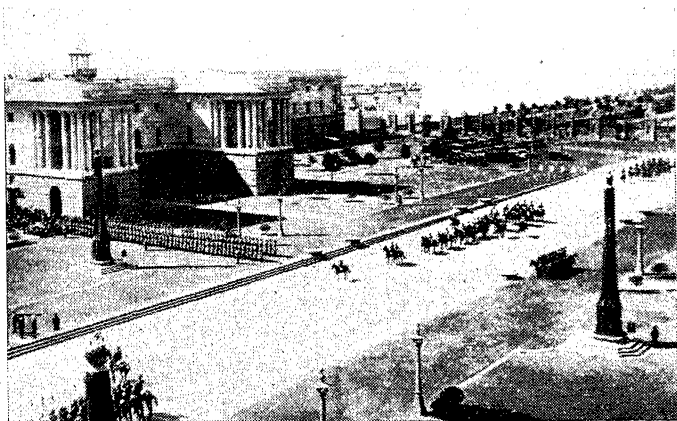
Del Credere Commission, the higher rate charged by an agent, in respect of which he guarantees the solvency of the purchaser. The contract need not necessarily be in writing, and the principal has no right to make a claim on his agent before he has sought to recover his due from the third party.

Delegates, Court of, was the great Court of Appeal in ecclesiastical

causes, and from the decisions of the Admiralty Court. By a statute passed in the second year of the reign of William IV. the court was abolished, and its powers transferred to the Privy Council.

Delescluze, Louis Charles (1809-71), a Fr. communist, *b.* at Dreux. He took an extremely active part in the revolution of 1830. He was deported to Cayenne after 1849, and he gives a description of same in his *Journal d'un Transporté* in 1869. In 1868 he started a paper called *Réveil* as organ of the Internationale. After becoming a member of the commune he was killed on the last barricade.

the bullet is still there. The first floor of his residence, the Prinsenhof, is used as an Orange museum. Beneath his monument in the New Church are the vault of the House of Orange and the memorial of Grotius the great jurist. In the Old Church is the monument of Admiral Van Tromp, a victor in thirty-two battles, and that of Piet Hein, admiral of the W. India Co., who in 1628 captured the Spanish treasure fleet. The Raadhuis or town hall in the Groot Market contains portraits by Van Mierevelt, who was *b.* here. An attempt is being made to revive the famous Delft Pottery. There



ARRIVAL OF THE VICEROY AT NEW DELHI

[The Times

Delfico, Melchior (1744-1835), an Italian economist, *b.* at Teramo in the Abruzzi. His special study was political economy and jurisprudence, and the writings he published had great influence in the country, and many abuses were corrected. From this position he retired in 1825. One of his most important works led to the abolition in Naples of certain restrictions in connection with the sale and exportation of agricultural produce.

Delft, one of the most charming towns in Holland, 8 m. N.W. of Rotterdam, having clean canals bordered with lime trees; the R. Schie passes through it and out into the Maas at Delfshaven. D. is an almost perfect specimen of a seventeenth-century Dutch town. Here William the Silent was assassinated, and the hole in the staircase made by

are manufs. of yeast, alcohol, glue and gelatin, dyes, machines, cigars, telegraph and telephone cables. Pop. 49,450.

Delgo, or **Delje**, a tn. of Upper Egypt, situated on the Nile. Pop. 11,000.

Delhi, the name of a city and prov. in the Punjab dist., British India. The city, which is now the official capital of India, as it was that of the Moghul empire from 1637, is on the r. b. of the Jumna, 112 m. N.N.W. of Agra, and is served by five railways, including the E. Indian, North-Western, and Bombay-Baroda lines. Gold and silver filigree work, glazed pottery, wood carving, shawls, and jewellery are the chief industries. Wheat, sugar-cane, barley, and cotton are grown in the district (1290 sq. m.), whose hard and stony soil is irrigated by the gov. canals of

Agra, W. Jumna, and Ali Mardan. In 1921 the pop. of the city was 304,420 and of the prov. 488,188. Its historic 'Ridge' will ever be remembered as the base of the British during the terrible siege of 1857, when the mutineers held out for three months. The death of the gallant Nicholson, the capture of the king of D. by Hodson, and the explosion of the ammunition magazine by Wilmoughby, to whom a memorial was erected in 1888, are indelible incidents in the pages of the Indian Mutiny. D. has been successively the scene of the great Durbars of 1877, 1903, and 1911, when Queen Victoria, King Edward VII., and King George V., who, with Queen Mary, attended the celebration in person, were respectively proclaimed Empress and Emperors of India. On Dec. 12, 1911, His Imperial Majesty announced that the administrative capital was to be moved from Calcutta to Delhi. The site chosen for the new capital is on the E. slopes of the hills to the S. of D. New D. is free from floods, has a natural drainage and allows for a pop. of 70,000. It is built on a rocky platform. The architecture of the city is Western with distinctive Indian features, and was designed by Sir Edwin Lutyens (*q.v.*) and Sir Herbert Baker (*q.v.*). The main buildings are the two secretariat buildings, Government House, and the Legislative Building or Parliament, a round-pillared building, half a mile in circumference. Other important buildings are the Museum, the Record Office and the houses of the members of the Governor-General's Executive Council. All gov. departments have their headquarters at New D. The main avenue, the King's Way, is spanned by a Triumphal Arch, which is the All-Indian War Memorial to the Indian regiments that fought in the Great War. In 1922 a Bill was passed for the establishment of a teaching and residential university at New D. During the building operations of the city 290,000 men were employed, and the bricks used would if laid end to end go round the world four times.

Delian League, see DELOS.

Delibes, Clément Philibert Léo (1836-91) a Fr. musical composer, b. at St. Germain-du-Val (Sarthe). His first noteworthy composition was the ballet music for *La Source*, which was produced in 1866. This was very successful, and he followed up with another similar work, called *Coppélia*, in 1870, also an opera, entitled *Le Roi Va dit*, 1873. In 1876 he produced a mythological ballet, *Sylvia*, and then a grand scena, *La*

Mort d'Orphée. In 1865 he was second director at Grand Opera, and a professor of the Paris conservatoire in 1880.

Delille, Jacques (1738-1813), a Fr. poet. His translation of Virgil's *Georgics*, 1769, brought him into prominence, and on Voltaire's recommendation he was admitted into the Academy. His didactic poem, *Les Jardins*, 1782, received extravagant praise. During the Revolution he settled in London, where he translated *Paradise Lost*. On his return to France he produced a translation of the *Aeneid*.

Deliquescence (Lat. *deliquescere*, to melt), a chemical term signifying the property common to certain compounds (caustic potash, chloride of calcium, etc.) of absorbing moisture from the air and becoming wet and sticky. Deliquescent substances form a class of *hygroscopic* substances, the other class being those that absorb moisture but do not become wet and sticky, *e.g.* black oxide of copper.

Delirium, a temporary derangement of the mental processes, similar to the condition of insanity, but usually associated with some form of bodily disease. D. may accompany any feverish condition, and varies in intensity according to the extent and degree of the fever; inflammatory disease affecting the brain is particularly liable to cause D. A toxic condition of the blood induced by the absorption of drugs such as opium, chloroform, and alcohol is apt to cause mental aberration. Exhaustion, whether as the effect of wasting disease, prolonged bodily exertion, or nervous strain, is also a possible cause. The types of mental perversion are illusions, hallucinations, and delusions. Illusions are false perceptions, where the image formed in consciousness does not correspond with the external object; hallucinations are fictitious perceptions, where images are formed without any external object; delusions are false ideas, where the subject conceives a state of things to be true without any foundation in reality.

Delirium tremens is one of a series of symptoms arising from continued indulgence in alcohol. It rarely happens that a single bout of heavy drinking culminates in this form of alcoholism, although the effects of long continued drinking may show themselves after a particularly heavy bout. Some individuals seem altogether immune, the poisonous effects of alcohol not including actual D. From the fact that many patients have more than one attack, it appears either that the first attack predisposes to another, or that certain individuals

are especially susceptible. Any bodily disorder acts as a predisposing cause, and the patient complains of general ill-health just before the characteristic symptoms set in. He has a feeling of restlessness during the day, and either does not sleep or is troubled with bad dreams during the night. Mental confusion increases until any form of mental derangement may appear. There are muscular tremors and continual perspiration. The patient has hallucinations, seeing unpleasant animals all around him; he may have delusions, being convinced that he is being confined by enemies. He is liable to be violent on occasion, and may need mechanical restraint. The attack usually lasts about four to six days, ending in a deep sleep, and leaving the patient in an extremely exhausted state. The greatest danger lies in the exhausting effects of the disorder, and the treatment should aim at sustaining the patient. Alcohol should be withdrawn entirely, and mechanical restraints should be avoided, all efforts being made to soothe the patient by endeavouring to persuade him that he is in the hands of friends.

Delisle (Lisle de), Guillaume (1675-1726), a Fr. scientist of Paris, eldest son of the historian and geographer (*d.* 1720), pupil of his father and of Cassini. He was one of the founders of modern geography. Before him all maps were based on those of Ptolemaeus (second century A.D.). He published about 134 maps, many purely geographical, others in connection with editions of voyages of discovery. In 1700 appeared his map of the world, and celestial and terrestrial globes. In 1702 D. became a member of L'Académie des Sciences, in 1718 geographer to King Louis XV. He wrote *Traité du cours des fleuves*, and contributed to *Mémoires de l'Académie des Sciences*.

Delisle, Joseph Nicholas (1638-1768), a Fr. astronomer, *b.* in Paris. He was first drawn to study astronomy by an eclipse of the sun on May 12, 1706. In 1725 he went to St. Petersburg by order of the Empress Catherine, and there founded an observatory. He is chiefly famous as the originator of a method for observing the transits of Venus and Mercury by instants of contacts.

Delisle, Léopold Victor (1826-1910), a Fr. historian, *b.* at Valognes, in the dept. Manche. From 1874 to 1905 he was general administrator of the Bibliothèque Nationale in Paris, and in 1897 a catalogue of the Bibliothèque Nationale was begun under his supervision. He wrote *Catalogue des Actes de Philippe-Auguste*, etc.

Delitsch, a tn. of Prussian Saxony,

12 m. N. of Leipzig. It has manufactures of sugar, cigars, chocolate, and shoes, and roller-mills. Pop. 14,890.

Delitzsch, Franz (1813-90) a celebrated theologian and Hebraist, was *b.* at Leipzig. His great learning and work diffused theological knowledge and criticism not only in Germany but also in England and America. His commentaries on Genesis, the Psalms, Proverbs, and Ecclesiastes were included in the complete commentary on the O.T., edited by Keil and D. His other works are *System der biblischen psychologie*, 1855; *Jesus und Hillel*, 1867; and a translation of the N.T. into Hebrew.

Delitzsch, Friedrich (1850-1922) a Ger. Assyriologist, son of Franz D., who wrote many important works, the chief being *Assyrische Studien*, 1874; *Wo lag das Paradies?* 1881; *Assyrische Grammatik*, 1906; and *Assyriologische Bibliothek*. He also gave some lectures on *Babel und Bibel*, which, owing to the Ger. Emperor's personal intervention, caused a good deal of discussion.

Delium, in anct. geography, was a tn. of Greece, situated on the coast, in Boeotia, about 25 m. N. of Athens. It was the scene in 424 B.C. of a battle, when the Athenians were defeated by the Boeotians.

Delius, Frederick, British musical composer, of Dutch and Ger. ancestry, was *b.* at Bradford, Yorkshire, on Jan. 29, 1863. Educated at Bradford Grammar School and the International College, Isleworth. He at first entered his father's business of wool importer, travelling to Germany, Sweden, and France, but in 1884 he went to Florida to grow oranges. Here he bought a piano and received instruction from the Brooklyn organist, Thos. F. Ward, who lived with him on the plantation. D. had played the piano as a small child, and when about seven years of age had been given violin lessons, which he had continued in Germany under Hans Sitt. After a period of music-teaching in America, he returned to Europe, and at the Leipzig Conservatoire in Aug. 1886, studied under Hans Sitt, Reinecke, and Jadassohn. His orchestral suite, *Florida*, was performed in 1888, with Grieg and Sinding in the audience. In the same year he made Paris his home, and for six years composed operas, a string quartet, and a sonata. His friends at this period included Ravel, Strindberg, and Gauguin, and he met and married the artist, Jelka Rosen. In 1897 he provoked a storm in Sweden by his satirical rendering of the Swedish national anthem. In May 1899 his music was performed

at the old St. James's Hall, London, meeting with both adverse and enthusiastic criticism. In the same year he settled down on a small property at Grez-sur-Loing, near Fontainebleau, where he has lived and composed ever since. A D. Festival, organised by Sir Thomas Beecham in London in 1929, aroused much enthusiasm, performances being given of *A Mass of Life*, *Appalachia*, and extracts from the operas *Fennimore* and *Gerda* and *A Village Romeo and Juliet*. *A Mass of Life* (*Zarathustra*), which is regarded as his greatest composition, is an epic of initiation, of the bringing to birth of God in Man, and has been described as 'a work which in its grandeur, its breadth of vision, and its wealth of beauty is unsurpassed by the most monumental achievements in music' (*A Dict. of Modern Music and Musicians* (Dent), 1924). D.'s music is marked by a rare sense of introspection. This is exemplified alike in his earlier and later work, e.g. in his sonata *Paris*, which is far from reflecting the popular fallacy of a garish and gay city, and his *Brigg Fair*, a splendid ruminative sonata. In 1930 he produced a third sonata, said to have been begun before his eyesight failed. This exhibits the same subtly delicious and slow opening, spirited and elegant andante scherzando and sad introspective close as are to be found in *The Walk to the Paradise Garden* and the *Three Pieces*.

Delius, Nikolaus (1818-88), a Ger. philologist and Shakespearian scholar, b. at Bremen, and from 1855-80 he was a professor at Bonn. His principal work was *Abhandlungen zu Shakespeare*, 1878 and 1887.

Dell, Ethel May (Mrs. Gerald T. Savage), Eng. novelist, whose first book was *The Way of an Eagle*, 1912. Since then she has issued over twenty volumes—novels and collections of short stories. She married Colonel Savage in 1922. Her stories, as well as her verses (a small book of which appeared in 1923), appeal to readers who unite a love of romance with a pious orthodoxy.

Della Casa, Giovanni (1503-56), Italian poet and translator, was b. at Mugello, near Florence, the son of a great Florentine family. In 1538 he took holy orders, and in 1544 was appointed Archbishop of Benevento; he was later made papal nuncio in Venice, and was attached to Pope Paul IV. One of the finest writers of the sixteenth century, D. translated Plato and Aristotle, wrote a treatise on manners called *Il Galateo* (1558), composed verse in both Latin and Italian, and compiled

several biographies. Several of his poems were notoriously licentious, e.g. *Capitoli del forno*.

Della Cruscan Academy (*Crusca Accademia della*), a body of Eng. people who resided in Florence in 1785 and published under the title of *Florence Miscellany* worthless poetry. These works were published in England in the *World* and the *Oracle*, and enjoyed a wonderful degree of popularity until Gifford in his *Eaviad* and his *Mæviad* severely criticised them. These criticisms were so merciless that the school entirely died out.

Della Porta, Giambattista (c. 1541-1615), Italian physicist, was b. and d. in Naples. As a youth he travelled in Italy, Spain, and France, and when only about fifteen had already formulated the first three volumes of his *Magia Naturalis*. He took part in the foundation of the Accademia dei Oziosi in Naples, then later, himself, founded the Accademia Secretorum Naturæ. Pope Paul V. caused the latter to be closed, but in 1610 D. P. was admitted to the Accademia dei Sinceri. Besides his works on natural magic, optics (including the camera obscura), gardening, physiognomy, and other subjects, he wrote several successful comedies in his later days which were collected and published in Naples in 1726.

Della Quercia, Jacopo (1374-1438), Italian sculptor, b. at La Quercia near Siena, son of a goldsmith. Executed a beautiful tomb for the wife of Paolo Guinigi, tyrant of Lucca; and the Fonte Gaia, built in the square at Siena, 1409-19. He partly decorated the portal of San Petronio, Bologna, with sculptural reliefs.

Della Robbia, see **ROBBIA**.

Dellys, a small seaport in Algeria, with 3300 inhabs., of whom 770 are Europeans. It has a church, hospital, school of arts and crafts and large barracks.

Delmenhorst, a tn. in the Free State of Oldenburg, Germany, with 24,700 inhabs. and manufactures of linoleum, textiles, and with roller-mills.

De Lolme, Jean Louis (1740-1806), a Swiss jurist, b. at Geneva, where he practised as a lawyer. In 1771 he published his chief work, which was *Constitution de l'Angleterre*, and which was held in high esteem for many years. His other works include: *Parallel between the English Government and the Former Government of Sweden*, 1772, and *History of the Flagellants*, 1782.

De Long, George Washington (1844-81), an American explorer, native of New York. He took part in a relief expedition to the Arctic, where Charles Francis Hall was exploring

Melville Bay (1873). In 1879 he commanded the *Jeannette* on a Polar expedition, when in 1881 the ship foundered, and after months of hardship he succumbed in N. Siberia. See *Voyage of the Jeannette*, edited by his wife.

Delorme, Marion (1613-50), a Frenchwoman of great wit and beauty who gathered around herself many wealthy and eminent men as lovers; among them being Cardinal Richelieu, Cinq-Mars, the Duke of Buckingham, Saint-Evremond, the Duc de Brissac, Grammont, and Condé. She was about to be imprisoned by Mazarin when she died. Victor Hugo dramatised the story of her life. See also Alfred de Vigny's *Cinq-Mars*, and Eugène de Mircourt's *Confessions de Marion Delorme*.

Delorme, Philibert (1510-70), a Fr. architect, one of the great exponents of the Renaissance style. He constructed the Tuileries, in collaboration with Jean Bullant, by order of Charles IX. His masterpiece was the Château d'Anet (1552-59), which was built for Diane de Poitiers. Some of his work is to be seen at Chameonceaux, and the tomb of St. Denis remains as a perfect specimen of his art.

Delos, the smallest (about 3 m. long and 1 to 1½ m. broad) and most famous of the Cyclades Islands in the Aegean. Its modern name is Mikra Dili, lying between Megali Dili (anct. Rheneia) and Myconus. Its name (δῆλος) refers to the legend that suddenly it rose above the surface of the waves, and that, whereas at first it floated, Zeus fastened it to the bottom so as to make it a safe refuge for Leto, who was there able to give birth to her twin offspring, Diana and Apollo. Henceforward the little island was sacred to Apollo, within whose precincts were built many temples and treasuries, including a shrine in his own honour. D. was famous for the splendour and solemnity of her festivals, to which men came from all corners of the earth, and the periodic festival was also frequented by hundreds of merchants; for on the fall of Corinth in 146 B.C. D. became a great mart—a centre for the extensive trade between S. Europe and the Asiatic coast. Her excellent roadstead became known to slave traders, who often bartered as many as 10,000 slaves a day at D. Many laws and customs bear witness to the inviolable and holy character of the shrine. The town of D., built at the base of the great granite crag known as Mt. Cynthus, never recovered from its devastation during the Mithridatic War of 87 B.C. Half-way up the

slope of the hill Cynthus ten great blocks of granite form a vaulted chamber which was the anct. temple seen by Æneas when he paid his homage to the city of Apollo (*Æneid*, iii. 84). Between Cynthus and the sea may still be seen the ruins of temples, courts and colonnades, even a portion of the colossal statue of the god himself and the remains of the shining city (see Dixon, *Hellas Revisited*, 1929).

Delphi (now Kastri), a tn. situated on the S.W. spur of Parnassus in the valley of Phocis. It was so called from Delpheus, the son of Apollo, but Pytho was also a popular name for the city, as it was here that Apollo, as a baby, slew the serpent Python. The story of how Latona's son gained possession of the oracle, the great glory of D., was dramatically represented each year at the festival of Septeria. At D. was guarded the sacred stone, the *omphalos* or navel, which was supposed to mark the centre of the earth. Legend gives the following account of how the seat of oracle came to be founded. There was a cleft in the ground, the stream from which caused a goatherd to gesticulate and dance in the most frenzied manner, and to utter weird expressions, accepted as inspired prophecies. Accordingly a temple over the spot was erected to Apollo. At first the oracles, which were always sung by a priestess called Pythia, were delivered only on Apollo's birthday, but later, if the sacrifices were propitious, the Pythia prophesied each day. These oracles were given in ecstatic and often very ambiguous and metaphorical hexameters, until men sarcastically remarked on the imperfection of the prosody of the god, who was, notwithstanding, the patron of all the poets, after which they were enunciated in prose. Up to the days of the Persian wars all Gk. states and many foreigners from Italy and Asia, as for instance the famous Croesus of Lydia, came to consult the god on such vital questions as the sending out of colonies, the declaration of war, and the enactment of new laws, but after that time honour and glory fell away from the sanctuary because of the venality, deceit, and strong Spartan sympathies of the priesthood. The temple, the exterior of which was Doric and the interior Ionic, was the repository of splendid votive offerings and statues, many of which were ruthlessly carried away by Nero to Rome, and later by Constantine the Great to adorn his new capital. During the Sacred War (356-346 B.C.) the Phocians sacked the treasuries, and were afterwards condemned for this sacrilege to pay

10,000 talents to the shrine. The Delphic temple was the chief sanctuary of the Amphictyonic league, which controlled international right, and from 586 B.C. onwards celebrated the famous Pythian games. The theatre of D., which is one of the best preserved, lies to the S.W. of the temple. No doubt D. was an information bureau which had its intelligence agents everywhere throughout Greece. That for a thousand years it maintained its illimitable prestige by pure trickery is unlikely. 'It is neither easy,' said Aristotle, of oracular dreams, 'to despise such things, nor yet to be-

Grand Dauphin. They are now of little use.

Delphinidæ, see DOLPHIN.

Delphinium, an extensive genus of the ranunculaceous order, abounding in temperate parts of the northern hemisphere and cultivated in gardens under the name of larkspur. *D. Ajacis*, the common larkspur, is often cultivated for its flowers, and has usually a single carpel; *D. consolida*, a hardy annual, has also one carpel, and its varieties are grown under the name of rocket larkspurs. *D. Barlowii* is a magnificent double-flowered perennial hybrid; *D. grandiflorum*, *D. Sibiricum*, and others constitute the



THE SITE OF DELPHI

lieve them.' Except after consultation with D. no Gk. colony was ever founded, and even Plato thought the advice of D. a wise preliminary in all national undertakings. There were dignity and pathos in the last of its oracles to the Emperor Julian: 'Go ye and tell the Emperor that the carved work of this sanctuary is cast down upon the ground, and the god thereof hath no longer where to lay his head. And the laurel of his divination is withered, and the waters that spoke with voices are dried up.'

Delphin Classics, a set of 64 vols. of Latin and Greek classics, edited in France from 1674-1730 by thirty-nine scholars under the direction of Montausier, Madame Dacier, Bosquet, and Huet. They were for the use of Louis XIV.'s son, called the

bee larkspurs, so named from their resemblance to that insect; *D. staphisagria*, the stavesacre, inhabits warmer countries of S. Europe, and its seeds were formally used internally as medicine.

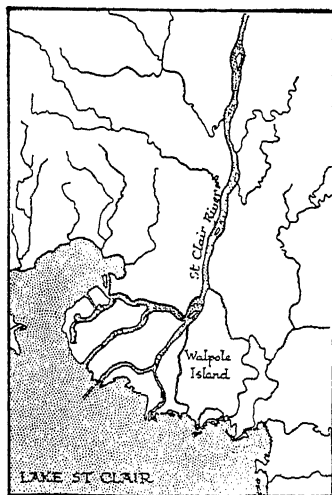
Delphinus, or **The Dolphin**, a small constellation near Aquila. From time immemorial it has been identified with a dolphin, the Romans calling it 'Vector Arionis' (the bearer of Arion), and the Greeks the 'Sacred Fish.'

Delphos, a city of W. Ohio, 70 m. S.W. of Toledo, with railway shops. Pop. 5672.

Del Rio, a city of S.W. Texas, co. seat of Val Verde co., a trading centre, shipping wool and mohair. Pop. 10,589.

Delta (from the shape of the Gk.

letter Δ , delta), the name applied to alluvial tracts of land enclosed between the bifurcating branches of a river and the sea which receives them. The term was first used with reference to the mouth of the Nile. Ds. are formed by the solid matter or fine silt, which is brought down in suspension by all rivers, and which is the measure of the denudation they accomplish in their course. The formation of Ds. seems to depend rather on the absence of opposing currents, where the rivers reach the sea, than on the amount of sediment carried down. For where there are strong ebb tides or ocean currents the detritus is deposited out at sea.



THE DELTA OF ST. CLAIR RIVER, ONT.

Thus Ds. nearly always occur in inland lakes, in sheltered bays and especially in the tideless estuaries of the Mediterranean. But it would seem that every river tends to form a D., and in support of this theory it may be noted that all large estuaries are being gradually silted up. The La Plata, for example, is full of shallows and sandbanks, and Dr. Darwin held that the green Pampas was merely the result of sediment accumulated in a former and larger estuary of that river. As regards the great D. of the Nile (8569 sq. m.), the old belief that Egypt was the gift of that river, is strictly true with reference to lower Egypt. This D. begins

to be formed 90 m. from the sea, and at its greatest breadth is 85 m. across. But one of the greatest Ds. in the world is that of the Ganges. The enclosed region of 31,880 sq. m. is itself traversed by innumerable streams that are continually interlacing. Over the D. the river reaches the ocean through some fifteen mouths, the most easterly branch being the main stream, whilst the most westerly is the sacred Hooghly. The deltaic arms of the Niger are seven in number, the chief channel being the Nun, the most easterly, Old Calabar; the tract enclosed, which is as large as Ireland, is covered with jungles, forests and swamps. Ds. are termed lacustrine, fluvial, or oceanic, according as the channels which form them flow into lakes, rivers, or seas.

Delta Metal, an alloy invented by G. A. Dick in 1833. It is really a variant of brass, consisting of copper and zinc to which a small proportion of ferro-manganese has been added.

Deltoid, triangular, having the shape of the Gk. letter Δ (delta). The *deltoid muscle* is attached to the clavicle, acromion, and spine of scapula, and also to the shaft of the humerus; its function is to raise the upper arm.

De Luc, Jean André (1727-1817), geologist and meteorologist, who invented a new form of hygrometer, and published the first correct rules for measuring heights by the barometer. His *Recherches sur les Modifications de l'Atmosphère* contains many important facts relating to heat and moisture.

Deluge, The (through O. Fr. from Lat. *diluvium*, flood; *diluere*, to wash away), a great flood or submersion of the earth by means of which almost the whole human race was destroyed. The name is more particularly applied to the Noachian D. described in the book of Genesis. Traditions of such a D. are to be found among many races of the world. Not only the Hebrews but also the Indians, Persians, Babylonians, Syrians, Americans, and Polynesians record such an occurrence in their early literature. No trace of the story is found in Africa, even among the ancient Egyptians, but the classical story of Deucalion related by Ovid is well known. These traditions speak of the D. as covering the whole earth, and the natural interpretation of the Biblical account would support this belief. This evidence was, until recently, considered conclusive both to Jews and Christians. Geologists, however, found that the constitution of the stratified rocks, and even of the surface deposits, rendered such a belief impossible, and the general

view of the flood now is that it was partial and local, possibly owing its origin to a sudden and extraordinary rising in the Euphrates valley, occurring at the same time as a great rainfall. The Babylonian accounts are most interesting ones and show remarkable parallels with the Biblical version. They agree with the latter in making the flood a punishment for sin, but the theology is frankly polytheistic, the flood being sent by Bel against the entreaties of Ea. The Chaldean king, Xisuthros, takes the place of Noah, and when the flood is imminent, Ea, the god of wisdom, warns him to prepare himself. He builds a ship 600 cubits long, 60 cubits broad, and 60 cubits high, and covers it with bitumen. Into this are brought all kinds of animals. Then for six days darkness and storm covered the earth, all creatures being destroyed but those in the ark. On the seventh day the ship grounded on Mt. Nizir, and Xisuthros opened the window. He sent forth a dove and a swallow, both of which return, and finally a raven which does not return. He then descends from the ship, and offers sacrifices to the gods. A fragment of a copy of a much older original than this, dating from the thirtieth century B.C. and discovered by Shiel, gives a slightly different account from this, so by that time several Babylonian accounts must have existed. As early as the eighteenth century it was pointed out that the narrative in Genesis was inconsistent in many particulars, and was compounded of two narratives. These are distinguishable by the fact that in the one Jehovah is the word used for God, while in the other Elohim is used. *See also* ZIUSUDRA.

Delusion, *see* HALLUCINATION, ILLUSION.

Delville Wood is situated just N.W. of Combes in Department of Somme, France. During the Great War it came into great prominence during the Battle of the Somme of 1916. At the commencement of July 1916 the Gers. were attacked in their positions on the Somme, and in the first 'push' the British line did not reach D. W. After a few days' breathing space for reorganisation, a second push was commenced on July 14, and lasted for three days, at the end of which the British line formed a right angle round D. W., of which the sides ran due S. and due W. respectively. The position had been captured by the S. African Brigade, but was very difficult to maintain, particularly as it was exposed to artillery fire from the N. and E. and suffered repeated counter-attacks. Fighting went on for weeks round

the position, which had been improved by a further British advance on both flanks on Sept. 3, 1916, thus reducing the salient. The next advance commenced on Sept. 15, and this time British tanks came to the assistance of the infantry. The Gers. fought stubbornly and well, and it was only after three days of hard fighting that D. W. was really free from further attack by the Gers.

Delvino, or **Delbino**, a tn. of Albania, 48 m. N.W. by W. of Yanina. The hills around are covered with orange groves and olive plantations. Pop. 6000.

Delyannis, Theodoros (1826-1905), a Gk. statesman, b. at Kalavryta. In 1878, after the Treaty of San Stefano, he ordered that Thessaly should be invaded. The Greek army only evacuated on the understanding that England would further the Greek cause at the Congress of Berlin. He was president of the Council in 1885 when Greece demanded from the Powers the lands that had been promised to that country. He was Prime Minister from 1890-92 and 1895-97, and was nominally responsible for the war of 1897. He was again Prime Minister from 1902 until he was assassinated in 1905.

Delysia, Alice, actress and singer; b. in Paris, March 3, 1885, daughter of Henri Lapize. Educ., Paris. Married: (1) Harry Fragson (d. 1913); (2) Georges Denis. Formerly a *midinette*. First on stage at Moulin Rouge, 1901; chorus girl at Opéra-Comique and Gaieté-Lyrique, three years. In New York at Daly's, 1905, in *The Catch of the Season*. First appearance in London, Ambassadors Theatre, Oct. 17, 1914, as Léontine in *L'Ingénue*.

Demades (d. 318 B.C.), an Athenian demagogue, whose unscrupulous use of his natural gifts raised him from a humble to a prominent position. He espoused the cause of the Macedonians, and incurred the bitter enmity of Demosthenes. The Athenians, discovering his treachery, passed on him the sentence of *atimia* (dishonour, loss of civil rights), but this was rescinded in 322 B.C., when he was sent as ambassador to Antipater, who put him and his son to death.

Demand and Supply, *see* SUPPLY AND DEMAND.

Demaratus, King of Sparta from 510-491 B.C., when he was deposed by Cleomenes. He then went to Persia, where he was welcomed by Darius, and he afterwards accompanied Xerxes in his invasion of Greece.

Demavend, Mount, the chief summit of the Elburz range of mountains, situated in the prov. of Mazandaran,

Persia. It reaches a height of 18,500 ft., is conal in form, and volcanic. Large quantities of sulphur and pumice-stone are obtained from its slopes.

Dembea, a productive, well cultivated dist. of Abyssinia, situated to the northward of Lake Dembea or Lake Tsana. The cap. of the dist. is Gondar.

Dembinski, Henryk (1791-1864), a Polish patriot and general who, from 1809-13, went as a volunteer to fight in the wars against Russia and Ger., and he distinguished himself greatly at the battle of Leipzig. He became general in the Polish army in the rising against Russia, 1830-31, and at the fall of Warsaw he fled to Fr. In 1849 he joined the Hungarians against the Austrians and Russians, and was made commander-in-chief of the Hungarian army by Kossuth, but was defeated at Kapolna.

Deme, originally meant the dist. inhabited by a tribe which formed an independent community. These small communities gradually became joined together into larger ones, and the word came to signify a country dist., a township, or a parish. These Ds. were especially important in the government of Attica as founded by Cleisthenes in 508 B.C.

Démembré, or **Dismembered**, see **HERALDRY**.

Dementia, see **INSANITY**.

Demerara: (1) A co. of British Guiana, situated between the Essequibo and Demerara Rs. Area 89,480 sq. m. Products: coconuts, coffee, cattle, gold and diamonds. The value of exports in 1928 was £3,271,108, and imports £2,632,511. Pop. 297,691 and 7700 aborigines. The chief exports are sugar, molasses. (2) A river in Brit. Guiana, rising in Maccari Mts. and flowing into the Atlantic in a northerly course. It is 170 m. long, and navigable to the rapids 95 m. above Georgetown.

Demeter, in Greek mythology, the daughter of Cronus and Rhea, and the sister of Zeus. She was the mother of Proserpine, who, whilst gathering flowers, is supposed to have been carried off by the god of the underworld, Plutus. D., on discovering the rape, leaves Olympus and goes down to the earth, where she dwells amongst mortals and especially at Eleusis, to the inhabitants of which place she brought great blessings. But in wrath for the rape, she visited the earth with a great dearth, and it was not until she was promised by Zeus that her daughter should visit her for two-

thirds of the year that her anger was appeased, and the earth again gave forth plenty. Ingratitude for the hospitality of the Eleusinians before she leaves the earth, she is supposed to have instructed them in mysteries by which she in future desires to be honoured. Deep meanings were read into the Eleusinian rites, and they were celebrated annually. Many meanings have been read into this story which readily lends itself to interpretation,



DEMETER

either in teaching the principle for future life, or as an allegory which shows the annual marriage of the mother earth (*ge-meter*). The story has many variations. The Romans worshipped D. as Ceres.

Demetrius Poliorcetes (the besieger), or **Demetrius I.**, King of Macedon (294-286 B.C.), b. about 335 B.C., the son of Antigonus, one of Alexander's generals. In 307 he accomplished the deliverance of Greece from Lysander and Ptolemy, and immediately after completely defeated Ptolemy in a naval battle off Cyprus. He made an alliance with Seleucus, and

finally gained the mastery of Athens, whence he was recalled to become king of Macedon at the assassination of the young king, Alexander. He was expelled from Macedon by Lysimachus and Pyrrhus, who invaded the country, and fled to Cilicia, where he was forced to surrender to Seleucus. He *d.* in prison in the Syrian Chersonese about 383.

Demetrius Soter, or **Demetrius I.**, King of Syria (161–150 B.C.), *b.* about 185 B.C., son of Seleucus IV., or Philopator. As a boy he was sent to Rome as a hostage and detained there while his uncle, Antiochus Epiphanes, usurped the throne on the death of Seleucus in 175. He finally escaped, and was acknowledged king by the Syrians and later by Rome. He was opposed by the Maccabees, and killed in a battle against Alexander Balas.

Demetrius Nicator, or **Demetrius II.**, King of Syria (146–126 B.C.), son of Demetrius Soter (*q.v.*). He remained in exile for several years after his father's death, and then landed in Cilicia and defeated Balas, who had usurped the throne. He married Cleopatra, an Egyptian princess, and lived a life of cruelty and vice. In 138, during a war with the Parthians, he was taken prisoner and detained for ten years, the throne being filled in the meantime by his brother, Antiochus Sidetes. He regained his position as king in 128, but his subjects rebelled and he was murdered at Tyre.

Demetrius Phalereus (345–c. 283 B.C.), a Grecian orator and philosopher, *b.* at Phalerum; studied under Theophrastus; was forced to flee into exile by Phocion. After Phocion's death Cassander made him governor of Athens in 316, and he administered the affairs of the city wisely for ten years. His works, which seem to have been highly esteemed, have all perished.

Demi-lion, **Demi-man**, or **Demi-rose**, see **HERALDRY**.

Demi-monde (Fr. *demi*, half, and *monde*, world or society), a word that came into use from the name of a play by the younger Dumas in 1855. Applied to women who disregard all laws of propriety and morals, and therefore can only be half recognised by society.

Deming, co. seat of Lunaco, S.W. New Mexico, U.S.A., with a large sanatorium for tuberculosis. 10p. 3377.

Demir-Hissar, now **Siderokastron**, in Greece (*q.v.*).

Demise, an Anglo-Fr. legal term (from the Fr. *démêtre*, to send away) for the transfer of a property, especially by lease. The phrase

'demise of the crown' is used in Eng. law, and means the immediate transfer of kingship and all its attributes to the next heir without any interregnum.

Demisemiquaver, a note in music equal to half a semiquaver, or the thirty-second part of a semibreve. It is written like a crotchet, but with three tails.

Demiurges, or **Demiurge**, the name given in Gnostic thought to the God who was regarded as the Creator of the material world, as distinct from the true, eternal, and unknowable God, who had no connection with matter. By the famous heretic, Marcion, the D. was identified with Jehovah, the God of the Jews.

Demmin, a tn. of Prussia, in the prov. of Pomerania, with 12,790 inhabs. and old tn. walls. Was one of the oldest Slav settlements in Pomerania, and was only conquered by Henry the Lion in 1164. It belonged to Sweden from 1648 to 1720. The R. Peene is navigable to this point and there is trade by it.

Democracy. The term is of Gk. origin and means literally 'power of the people.' It is used to designate a form of state government. A democrat is a partisan of government by the people. The kernel of a democratic state-form is the constitutional right of the people to govern themselves. It further means a society based on equality. In a metaphorical sense the word D. is also employed to characterise the tendency of the progressive nations during the last two centuries toward the realisation of a social and political organisation based on popular control. Continental writers, especially the Fr., use the word in a social sense; Gk. philosophers used it in a gov. sense; and Eng. and American political writers limit its use to the actual exercise of political power by the people. D.'s final aim is not confined to the establishment of a republican gov., and can accommodate itself within the limits of a monarchic state. A monarch reigns, but does not govern. In democratic republics all citizens have equal rights, and are as a body, at least theoretically, the formal rulers of the state. In practice the real power is exercised by certain privileged classes. Monarchies and republics are both exposed to the danger that a master man gets hold of the reins of state and rules as a *Despot*, or Dictator. The decadence of the aristocratic and moneyed classes leads to *Oligarchy*. The degeneration of the masses leads to the worst of all powers, to *Ochlocracy*—Anglicised, the rule of the rabble. D. as a social principle

rests upon the doctrine of the essential equality of all men—a notion derived from the Christian conception of the equality of all men before God, which owes its transference from religion to society and politics mainly to the works of Jean Jacques Rousseau. It must not be forgotten also that the so-called Ds. of the ancients were anything but democratic in sentiment or in social structure. In modern times the revival of militarism in Europe during the latter half of the nineteenth century has delayed the progress of D. The marvellous industrial expansion and the grandiose economic development during the same period have aided D. very much, but they have also exposed it to the acute onslaught of plutocratic predomination. Modern political D. is derived from the social conception of the equality of all citizens, and is satisfied with nothing less than the substantial participation of the whole of the people in the management of the state. See De Toqueville, *Democracy in America*; T. E. May, *Democracy in Europe*; Sir H. Maine, *Popular Government*; Bryce, *American Commonwealth*; Lecky, *Democracy and Liberty*.

Democrats, a name of one of the two great historic parties in the U.S.A., the Republicans (*q.v.*) being the other. Roughly speaking—but it is, of course, only a very rough generalisation—the D. may be compared to the Liberal party in Great Britain, and just as the latter party have shared alternately the government of the United Kingdom with the Conservative party, so in the U.S.A. the D. have, since the establishment of the republic, shared the 'spoils of office' with the leading opposition parties of the time. The policy of the D. has undergone many changes during the last century, but in the main D. have stood for 'State rights' and human rights as against the growing tendency of the central or federal government to usurp power. This question of 'State right' has always been to the fore in the U.S.A., and was one of the first questions to agitate the young republic. George Washington, the first president, with his lieutenant, Alex. Hamilton, Secretary of the Treasury, was the leader of the party called the 'Federalists,' which stood for a strong national or centralised gov. Opposing him was Thos. Jefferson, the Secretary of State, who stood for decentralisation (see CENTRALISATION), and whose party was known indifferently as the Republicans or Democratic Republicans, or the D. The title of Republicans disappeared

towards the end of the first decade of the nineteenth century, and that of Democratic Republicans in the campaigns of 1828. The party elected Jefferson as president in 1801 and remained in control of the gov. till 1841. Since then they have been in power from 1845–49, 1853–61, 1885–89, 1893–97, and 1913–1921. Democratic presidents since Jefferson have been Madison Monroe, J. Q. Adams, Jackson, Van Buren, Tyler, Polk, Pierce, Buchanan, Cleveland, and Thos. Woodrow Wilson. In pursuance of their general policy of supporting state-rights, the D. in the main lent their aid to the southern states before the Civil War, 1861–65. The party opposing them took the old name of the D., viz. Republicans, in 1856. In later years, after the passions of the Civil War had cooled, the questions at issue between the D. and the Republicans were mainly the currency and the tariff. President Grover Cleveland crystallised the Democratic attitude by speaking of a tariff for revenue only, that is one to raise only such money as the gov. needed for its expenses, rather than the high protective tariff which the Republicans advocated to aid American manufactures. The currency issue became acute in the famous campaign of 1896, when William Jennings Byran was the Democratic nominee for President on the free silver platform. He advocated bimetalism (*q.v.*) instead of the gold standard. In three separate Presidential campaigns when he was the nominee this was one of the great issues, and then it dropped out of the party platform. Even on the tariff, the Democrats are not such extreme opponents as they used to be, admitting that a certain amount of protection is necessary for the country, but fighting the mountain-high tariffs the Republicans put into the Bill signed by President Hoover. The last Presidential campaign was fought by the Democrats mainly on the prohibition issue, the nominee, 'Al' Smith, being a 'wet.' It resulted in an overwhelming defeat for his party, four S. states voting Republican for the first time since the Civil War. But just as the slavery issue would not subside, so it is with this prohibition question. The wet and dry issue threatens to be troublesome to both parties.

Democritus (b. c. 460 B.C.), a Greek philosopher, was a disciple of Leucippus, and the most learned Gk. before Aristotle. Though his father had been so wealthy as to entertain Xerxes and his host on their expedition against Greece, D. managed to

dissipate his fortune during his quest for knowledge in Europe, Africa, and Asia, and having reduced himself to poverty, only escaped the ignominy of having no funeral by reciting his *Diacosmus*, after which he was promised a public burial. Nothing practically remains of his many works on astronomy, mathematics, art, literature, and ethics—works which he composed in the solitude of a garden near Abdera, his native city. See Gomperz, *Greek Thinkers*.

Demography, see VITAL STATISTICS.

Demoiselle, or Numidian Crane, the gruiform bird *Anthropoides virgo*, closely allied to the cranes. It is indigenous to Asia, is a winter visitor to Africa, and often frequents S. Europe.

Demoivre, Abraham (1667–1754), b. at Vitry in Champagne, and educated at Sedan, Saumur, and Paris. On the revocation of the Edict of Nantes he, being a Protestant, fled to Eng., and supported himself by giving lessons and by lecturing. He owed much to Newton's *Principia Mathematica*, and afterwards dedicated his *Doctrine of Chances* to that Eng. mathematician. He was chosen as judge in the famous contest between Newton and Leibnitz for the merit of the invention of fluxions. His published works include *Annuities upon Lives*, 1725, and *Miscellaneous Analytica de Seriebus et Quadraturis*, 1730. Referred to by Pope, 'Sure as Demoivre without rule or line.'

Demoivre's Hypothesis, an hypothesis on the duration of human life, formed by D., as he informs us in the preface of his *Treatise on Annuities*, some years after the publication of the first edition of his *Treatise on Chances*, on the inspection of Halley's Breslau Tables. Observing that the decrements of life at the middle ages were very nearly uniform, D. made an extension of this law to the whole of life, not thereby intending to assert that any such principle was correct for childhood and old age, but simply that the effect of the error upon the value of annuities at the middle ages of life would be trivial. The hypothesis is as follows: *Of eighty-six persons born, one dies every year, till all are extinct*. The remainder of eighty-six years, at every age, D. called the *complement of life*. The half of the complement of life is the average duration (commonly called the expectation); and the peculiarity of Demoivre's Hypothesis is that, according to it, every person has an even chance of living the average time of people of his age, which is not true of other tables. The Northampton Tables certainly do nearly coincide with this law at the middle

periods of life, but the Carlisle and most other tables differ materially from it.

De Molay, Order of, a non-sectarian secret order of young male American citizens, not over twenty-one years of age, founded at the close of the Great War, by Frank Land, at Kansas City, and so named in memory of Jacques De Molay, the last of the military grand masters of the Knights Templar. The Order exists to promote among members the virtues commonly associated with chivalry and also to foster the public school system. Its membership, apart from some 120,000 past or over-age adherents, is upwards of 250,000, and there are about 1700 chapters. The affairs of the Order are managed by a grand council of Freemasons.

Demonetisation, a term used in connection with currency in two senses. The first and more general sense is used for the divesting of money of a standard value (see BIMETALLISM). The second signification of the word is the withdrawing of coin from circulation. This is done by proclamation stating that after a specified date a certain coin will not be legal tender.

Demonology, that branch of religion which deals with evil spirits or demons. In every religion the presence of these spirits is recognised. In the lowest cults they receive almost exclusively the worship and sacrifice of men. The beneficent deities are considered as easy-going, and they may be trusted to continue in a course of helpfulness to man. Occasionally gratitude must be shown to them, or any cessation of their benefits must be renewed by some propitiation, but they may generally be ignored. The evil spirits, on the other hand, are not less active than powerful, and man must ever be on the watch to propitiate them. In this stage, the witch-doctor, whose powers are handed on in a kind of guild, flourishes well. As religion improves in any community, the influence of the evil spirits is gradually limited. Their powers become less and they assume much less attention. Two chief classes of demons are recognised, though in primitive thought the distinction is not clearly drawn. The first class consists of departed human beings who are regarded as still influencing the race, and capable of doing it good or evil. The second class consists of spirits which never inhabited a body, and which are frequently derived from the powers of nature, and are conceived of as associated with the manifestation of that power. It will be seen, too, that the distinction between good and

evil spirits depends more upon the sphere of their action than upon their nature. Fire and disease are evil when they attack the individual, but beneficent when invoked against his enemies. As the idea of God evolved, so did the idea of the evil forces opposed to him. In primitive religion, all is vague and confused. Then when definite polytheism is reached, the evil spirits become limited in number, have definite spheres assigned to them, and receive names. This process, however, is not invariable, for among the Koreans, who number their demons by billions, an increase of culture seems to have brought about an increase of these spirits. Here, too, they are not considered as especially malignant. Finally, we have monotheism, God being opposed by one single evil spirit. Perfect dualism is found in Zoroastrianism, where every good is opposed by its evil, and Ormuzd is opposed by Ahriman. Similarly in Christianity and O.T. Judaism, Jehovah is opposed by Satan, and the hosts of the good angels are opposed by the hosts of the fallen angels. Here, however, we find the evil definitely placed in subordination to the good, a fact which is most clearly exemplified in Job, where Satan appears as a servant of God, whose permission he must ask before tempting Job. The Gospels distinctly recognise the belief that disease was the result of 'possession' by demons, and the early church carried on Christ's method of expelling them. Exorcists long formed an active minor order, and the name still remains in the Rom. Catholic Church. The common opinion of the early church was that the gods of all heathen nations were evil spirits who had usurped the place of God, an idea which found its greatest expression in Milton's *Paradise Lost*. In the northern lands they were further discredited by being made ridiculous. The Satan of the miracle plays was a fool whom every one might outwit, the ancestor of the Elizabethan clown. The most elaborate system of D. is the Moham-medan, which is largely derived from that of the popular Judaism shown in the apocalyptic books. Belief in more or less malevolent spirits survived throughout the Middle Ages, and late examples of belief in witchcraft among the educated may be found in Burton and Sir Thomas Browne. Popular belief has not yet gone. The belief in vampires is chiefly found in Slavonic lands, but many references to the succubi and incubi, supposed to consort with women in their sleep, may be found everywhere. See Tylor's *Primitive*

Culture (fourth ed.), 1904; Hild's *Etude sur les Démones* (Paris), 1881; Conway's *Demonology and Devil Lore* (2 vols., New York), 1889; Carus's *History of the Devil and the Idea of Evil, etc.* (Chicago), 1900; Roskoff's *Geschichte des Teufels*, 1869.

Demonstration (Lat. *demonstrare*, show forth, point out), strictly, indubitable proof of a proposition, proof in which the conclusion follows of necessity from the premises. The great domain of D. is mathematics, in which all proofs are derived from simple axioms. It is often loosely used for any proof, even an imperfect one, or even for an explanation and exhibition of specimens and practical operations in science and art (anatomical, laboratory, cookery D.). It may also mean a public manifestation or display of interest in some cause, by means of processions or mass meetings (suffrage, labour D.), often used so as to involve a slight censure. An outward exhibition of feeling; indication.

Demonstrations, Military, in military tactics, an operation intended to deceive the enemy by pretending that danger is threatening him from another quarter, thus distracting his attention from the real, more imminent peril, and inducing him to divide his forces. A means of engaging the foe's attention in the course of active hostilities while other operations are conducted elsewhere. Such a demonstration during an actual attack is called a 'feint.' In time of peace demonstrations may be used to show readiness for war.

De Morgan Augustus (1806-71), an English mathematician, b. at Madura in India. De M. had a strong idea over the principle of the union of logic and mathematics, but against this principle he met a fierce opponent in Sir William Hamilton. In support of a decimal coinage he drew up a report which was recommended by a committee in the House of Commons. His most important works are: *Elements of Algebra*, 1835; *Formal Logic*, 1847; *Book of Almanacs*, 1851; and *A Budget of Paradoxes*, 1872.

De Morgan, William Frend (1839-1917), novelist, b. in London, eldest son of Augustus de Morgan, a distinguished mathematician and fourth Wrangler, Cambs. Univ. Educated at University College School, and University College. Began art training in Cary's studio, and subsequently studied at the Royal Academy. Tried his hand at designing in stained glass, and experimenting in lustre and pottery-work, besides painting generally. Though not successful as a painter (the character of Charles

Heath in *Alice for Short* may be regarded as a portrait of the author, whose early promise as a painter never materialised, he succeeded in perfecting his lustre process (a resuscitation of a fifteenth century process by Gubbio) and furthermore elaborated a new process for painting in Persian colours beneath the lustre. His 'tile-pictures' were also a great success and decorated the cabins of many an ocean liner. Later he became a member of the celebrated Chelsea aesthetes (Burne-Jones, Ford Madox Brown, Dante Gabriel Rossetti, and William Morris). After this his health broke down, and he sojourned for some time in Florence, being compelled on his return to alleviate his labours by taking a partner into his designing and tile-making business. This business was never a great commercial success and closed about 1901. But though clever as a designer and lustre worker, it is as a novelist that De M. will go down to posterity. His appearance in the rôle of novel-writer was startling, for it is rarely that a man when over sixty years of age can hope to write a successful first novel. Yet De M.'s *Joseph Vance* (published 1906), with its intimate and realistic touches, its quiet humour, and lively imagination, was hailed generally as a fine work. *Alice for Short* (1907)—his masterpiece—with its pregnant delineation of a child's feelings in slum-life—stamped De M. as one of the best of modern novelists. His last novel was *When Ghost Meets Ghost* (published in 1914). In style his novels are of the Dickensian or James order. The foundations are laid solidly, but the development is somewhat tedious, as was the manner of some Victorian writers. Though the life of the nineteenth century London is vividly portrayed, there is no Zolaesque realism. De M. was too sensitive, perhaps too amateurish, an artist, too charitable in sentiment and genial in temperament to search after the uglier sides of truth and passion, or to try to express such truths in dramatic word-pictures. Other novels: *Somehow Good*, 1908; *It Never Can Happen Again* (2 vols.), 1909; *An Affair of Dishonour*, 1910; *A Likely Story*, 1911.

Demosthenes (c. 384–322 B.C.), the greatest Athenian orator and statesman, b. in the deme of Paonia, in Attica, his father being a wealthy citizen. His father died early, leaving much wealth to his children, but the trustees abused their trust entirely. D. prosecuted them on coming of age, and his success on this occasion led to his decision to embrace public life. He underwent a most strenuous

course of training to overcome his natural defects. To strengthen his voice, he declaimed to the sea in stormy weather, striving to make his voice heard. To overcome stammering, he practised speaking with his mouth full of pebbles. To improve his delivery he studied under Satyrus, the actor, and before a mirror. His first appearance in politics was made in the year 354 B.C., when in his speech 'On the Navy Boards' (Symmories) he discouraged attack on Persia. To 352 belongs his speech 'For the Megalopolitans,' but his fame was not achieved till the next year, when in his First Philippic he made a strenuous attack on Philip of Macedon, urging his countrymen to cease their mutual jealousies and unite against this common menace.



DEMOSTHENES

In 349 D. delivered his three 'Olynthiaces,' in which he urged the Athenians to defend Olynthus against Philip. In 347, however, Philip gained this last Athenian outpost, and D. was one of the ambassadors sent to negotiate peace with the Macedonian king. The probity of the orator himself was above suspicion, but bribery in other quarters was more successful, and the conqueror was allowed to possess himself of Thermopylae. Peace was concluded in 346, but Philip's intrigues went on continually, and D. gave himself to the work of denouncing them in no measured terms. To this period belong his Second and Third Philippics (344 and 341). On the same work of counter-acting Macedonian influence he had gone as ambassador to the Peloponnese in 344. The famous speech 'On the Affairs of the Chersonese,' in

the same year as the Third Philippic, forms with the latter oration D.'s crowning effort. When Philip again began a course of active aggression in 340, it was D. who rallied all possible forces against him and supported Greek hopes until the terrible disaster of Charonea. This ends the era of the political activity of D. Henceforth he devoted himself to municipal affairs. So highly was he held in honour, that, in 336, Ctesiphon proposed that he should be presented by the state with a gold crown. To prevent this Bill passing the Assembly, Æschines gave notice that he should proceed against Ctesiphon for introducing an unconstitutional measure. He procrastinated until 330, when his speech 'Against Ctesiphon' evoked from D. the immortal oration 'On the Crown.' In 324 the orator was accused of appropriating twenty talents, and was imprisoned. He escaped and was recalled in the next year to support the Athenian league against Antipater. On the failure of this, Antipater demanded his surrender and he fled to the temple of Poseidon, where he took poison to avoid capture. The private life of D. was of the noblest, and his strenuous and unselfish exertions in the cause of his country entitle him to a high place among the great men of antiquity. All critics since his own day have held him as the greatest of all orators. For full list of editions see J. B. Mayor's *Guide to the Choice of Classical Books*, 1885 and 1886. See also W. Engelmann's *Scriptores Græci*, 1881; Blass's *Demosthenes*, 1883; Schäfer's *Demosthenes und seine Zeit* (2nd ed.), 1882; Butcher's *Demosthenes*, 1879.

Demosthenes, son of Alcisthenes, an Athenian general, prominent in the Peloponnesian War. In 425 he garrisoned Pylos, a rocky promontory on the Lacedæmonian coast, and defended it against the Spartans till relieved by the Athenian fleet, when he forced the Spartan force on Sphacteria, a neighbouring island, to capitulate. Shortly afterwards he gained Nicæa, but failed to gain Megara. In 413 he and Eurymedon were sent to the relief of Nicias, who was in difficulties at Syracuse. He made a night attack on Epipolæ, but was defeated, and counselled Nicias to retreat. This he postponed till too late, and the Athenians were totally defeated in two battles and Nicias and D. taken prisoners. Both committed suicide.

Demotic Writing. The hieroglyphic writing of ancient Egypt was essentially pictorial, and to simplify this the cursive *hieratic* was instituted. This again was further modified and

the still more cursive *demotic* writing became known. The term 'demotic,' meaning popular or common, was used to distinguish it from the hieratic or sacerdotal writing; it was used synonymously with *enchorial*. Demotic writing was in vogue as far back as the twenty-second dynasty, but its use faded in the third century B.C. Finally, on the conversion of Egypt to Christianity, the Gk. uncial was used for ecclesiastical purposes in place of the demotic script, and the Gk. cursive was used for secular purposes. Six or seven of the demotic letters were, however, retained in order to express certain Coptic sounds which are not found in Gk. The Rosetta Stone (now at the British Museum) had a trilingual inscription in hieroglyphic, demotic, and Gk. writings.

Dempsey, William Harrison (Jack), boxer, b. at Manassa, Colorado, June 24, 1896, of Scotch, Irish and American extraction. Originally a hard-rock miner, D. fought his first professional fight in Colorado in 1914. By defeating Willard in 1919 he became World's Heavyweight Champion, and in 1921 he enhanced his reputation by knocking out Carpentier at Jersey City. In 1922 he toured Europe, and in 1923 a terrific contest with Firpo ended in Firpo's defeat. D. defeated every boxer of note until in 1926 he lost his title to Tunney and a year later made a gallant effort to regain it, but was defeated on points after ten rounds.

Demurrage, an allowance made to a shipowner by the freighter for the detention of the ship in port beyond the specified time of sailing. A certain number of days, called lay days or lie days, are allowed for receiving and discharging cargo, and it is usually stipulated that the freighter may detain the vessel, after the expiration of these days, on payment of so much per diem for overtime. The D. ceases as soon as the vessel is cleared ready for sailing, though she may be prevented from doing so by adverse winds, etc.

Demurrer. In the language of pleadings in an action at law, D. signifies an issue upon a matter of law as opposed to fact, i.e. it confesses the facts as stated by the opposite party to be true, but avers that those facts disclose no cause of action or ground of defence. A D. is now known technically as 'an objection in point of law.' In criminal law D. is an objection by the accused that the facts, even if true, do not in law constitute the crime with which he is charged. Such a D. seldom occurs in practice.

Demy (i.e. half-fellow), the name

given to the holder of a scholarship at Magdalen College, Oxford.

Demy, a particular size of paper. In printing paper each sheet measures 22 in. by 17½ in.; in drawing paper 22 in. by 17 in.; and in writing paper 20 in. by 15½ in.

Denain, a tn. of Nord, France, 14 m. E. of Douai. Has coal-mines and ironworks. An obelisk marks the scene of Marshal Villars' victory over the allies under Prince Eugene, July 27, 1712. Pop. 26,870, which originated with an abbey in the eighth century.

Denarius: (1) A Roman silver coin, first minted 269 B.C., equal at first to 10 asses, whence its name, but afterwards considered equal to 18 asses, when the weight of the as was reduced in consequence of the scarcity of silver. The value of the D. under the republic was rather more than 8½d., and at a later period about 7½d. The gold D. was worth about 25 silver denarii. (2) Also a weight. The Roman pound (libre) contained 96 denarii, the ounce 8, and the D. 3 scruples.

Denbigh, or **Denbighshire**, a co. of N. Wales, on the Irish Sea, and between the Dee and the Conway. Area 664 sq. m. It contains the fertile valleys of Llangollen and the Clwyd. The whole surface is rugged and mountainous. The rocks are chiefly Silurian clay and graywacke slates, with some granite and trap, and bands of Devonian, Carboniferous, and Permian strata. Coal, lead (yielding some silver), iron, limestone, grindstone, and flagstone abound. It yields excellent dairy produce, and is well timbered. Chief towns: Denbigh, Ruthin, Wrexham, Llanrwst, Abergele, Holt, and Ruabon. Rivers: Dee, Conway, Elwy, Clwyd. Tumuli and other pre-Roman remains still exist. Pop. 154,847.

Denbigh, the co. tn. of Denbighshire, 30 m. W. of Chester, but the assizes are held at Ruthin. Stands on a steep limestone hill, which is crowned by an ancient castle on the site of a fortress erected by William the Conqueror. The gatehouse is one of the finest in England, from whence can be had a magnificent view of the vale and hills. The newer part was built at the bottom of the hill, after the destruction of a great part of the old town, about 1550. In 1645 Charles I. took refuge in the castle after the battle of Rowton Heath. Pop. 6783.

Denbigh, Rudolph Robert Basil Aloysius Augustine Feilding, ninth Earl of (b. 1859), a lord-in-waiting to King Edward VII. and to Queen Victoria from 1897-1906. He joined the Royal Artillery in 1878, fought in the Egyptian campaign of 1882.

Dender, a river of Belgium. Its source is in the prov. of Hainault, and its course is N. and N.E., through Hainault and Brabant. It joins the Scheldt at Dendermonde, after passing Ath, Grammont, and Alost, and is navigable from its junction with the Scheldt to Ath.

Dendera (Gk. Tentyra; Coptic Tentore, probably from Tei-n-Athor, the abode of Athor), a vil. in Upper Egypt, once a populous tn., situated near the l. b. of the Nile, in 26° 13' N. lat., 32° 40' E. long. It is celebrated for its temple, which dates from the period of Cleopatra. The temple is 220 ft. long and about 50 ft. broad, has a noble portico supported on twenty-four columns. The walls are covered with hieroglyphics, and on the ceiling of the portico is a zodiac in which the crab is represented by a scarab. There are other sacred buildings, including a temple of Isis.

Dendermonde, or **Termonde**, a tn. of E. Flanders, Belgium, has suffered much from war. In 1667 the inhabitants repulsed Louis XIV. by opening the sluices and inundating the whole district. He said that only an army of ducks could take it, but Marlborough did so in 1706. On Sept. 4, 1914, the Gers. entered it and damaged or destroyed 1200 out of 1400 houses, after looting them all. The Belgians reoccupied it on Sept. 10, and it was bombarded on Sept. 16 to 17. The Gothic fifteenth-century church of Notre Dame was much damaged by the bombardment, and the town hall of the fourteenth to sixteenth centuries was burned. The imposing Palais de Justice adjoins it. The pop. is 9866.

Dendrites, or **Dentritic Markings**, a geological term. Stains usually black or brown, and branching like fern fronds. They are generally found in the joints and at the division planes of rocks. They are caused by infiltration of iron and manganese solutions into cracks from whence they have afterwards evaporated. Like markings are also seen in agate or chalcedony, forming a species of 'moss-agate.'

Dendromys (Gk. δένδρον, tree, μῦς, mouse), a genus of rodents, belongs to the family Muridae, which comprises mice, rats, voles, and other well-known creatures. It consists of about half-a-dozen species dwelling in Ethiopia. *D. typus* (or *mesomelas*) is about 8 in. long, over half its length belonging to its strong, slender, prehensile tail. In colour it is reddish-brown above, whitish beneath, and its habitat is the branch of a tree, where it constructs a nest and rears its young.

Dendrophis, a genus of tree-snakes of the subfamily Colubrine, all of

which are non-venomous and harmless. The keeled scales along the back are wider than those along the flanks, and the snakes glide up trees in almost a straight line. The genus has representatives in Australia and Africa.

D'Enghien, Duc, *see* ENGHIEU.

Dengue, or Breakbone Fever, or Dandy Fever, an epidemic infectious disease, peculiar to tropical countries. In many ways it resembles rheumatic fever and influenza. The typical case begins with pains in the back, limbs, and joints, a rising temperature following rigors. Before the temperature falls an itching rash appears; the temperature generally falls about the fifth day. There is, however, an intermittent type in which the temperature sinks on the third and fourth days and rises on the fifth before its final lysis. Extreme weakness follows, and heart failure has to be guarded against by the use of stimulants and nourishment, and also much rest. It is thought that D., like malaria, is carried by mosquitoes.

Denham, Sir John (1615-69), an English poet belonging to the Caroline group, *b.* at Dublin. He was educated in Dublin and at Trinity College, Oxford, where he gained the reputation of being a 'slow, dreaming, young man, and more addicted to gambling than study.' In 1634 he married and went to live at Egham, Surrey. At the outbreak of the Civil War he was high sheriff of Surrey, but he had no military ability, and surrendered Farnham Castle, of which he was governor, to the parliament. After a short imprisonment he joined the king at Oxford, and engaged in many secret services for him. Soon after the Restoration D. lost his reason, according to common report, on account of the Duke of York's attentions to his wife. D. was a better poet than soldier or diplomat, and his poem *Cooper's Hill*, describing the scenery of the Thames Valley at Egham, was the model of Pope's *Windsor Forest*. Among his other works were: *The Destruction of Troy* (1656), a paraphrase of the second book of *Æneid*; *The Anatomy of Play* (1651), a prose tract against gambling; *The Sophy* (1642), a tragedy in five acts; *Directions to a Painter*, and *Fresh Directions*, bitter satires on the shameful conduct of the Dutch war; and a beautiful *Elegy* on Abraham Cowley (1667).

Denia, a city and seaport in the prov. of Alicante in Spain, on the Mediterranean, and 45 m. from Alicante. Founded by the Phœnicians and once called Hemeroscopion, it was the place where Sertorius fled to after his revolt in Rome, 81 B.C.

This town is the centre of the export raisin trade, but it also exports grapes, oranges, almonds, onions, and ground nuts. In Moorish times the pop. was 50,000, but now the inhabitants number 13,160.

Denier, formerly the unit of silver coinage in France, worth $\frac{1}{20}$ of the *livre d'argent*. Cf. the Latin *denarius* (first issued c. 269 B.C., worth 10 asses). From the sixteenth century a copper coin of insignificant value, worth $\frac{1}{4}$ of a sou. *See* Murray, *New Engl. Dict.*, iii.

Denifle, Friedrich Heinrich Suso (1844-1905), Austrian priest and historian; *b.* at Imst, Tyrol; son of Johann D., schoolmaster and organist. Studied at Brixen. Joined Dominicans, 1861. Received holy orders, 1866; visited Rome; became Professor of Theology in Dominican monastery, Gratz, and famous as preacher. Archivist to Vatican, 1883; prepared new ed. of St. Thos. Aquinas. With P. Ehrle, edited *Archiv für Literatur und Kirchengeschichte des Mittelalters*. His *Luther und Luthertum*, 1904-09 (completed by Weis), aroused much controversy.

Denikin, Anton, Russian general of humble origin; *b.* 1872, entered the army 1887, became a divisional commander in S. Army in the early part of the Great War. At the Russian Revolution he joined Kornilov (*q.v.*) and was later imprisoned with him. Both escaped and gained the shores of the Black Sea in the Caucasus. Here they joined General Alexeyev's volunteer army. Kornilov *d.* in March 1918, and D. commanded the force which opposed the Bolsheviks in S. Russia. On Alexeyev's death D. became leader of the anti-Bolshevik forces in S. Russia, and he set about consolidating his position. D., though a good soldier, was not equal to the occasion as a politician, and he vainly tried to set up a military dictatorship. This did not find favour with his friends, and, moreover, his army lost its popularity owing to its depredations for supplies in the neighbouring country. By the summer of 1919, demoralisation had set in, and when the Bolsheviks attacked his force in November 1919 it broke up completely. D., however, escaped into Turkey.

Denilquin, a municipal tn. of New South Wales, Australia, situated on the Edwards R., in the co. of Townsend, about 490 m. S.W. of Sydney. Pop. 2660.

Denina, Carlo Giacomo Maria (1731-1813), an Italian historian. In 1756 he was appointed Professor of Humanities and Rhetoric at the college of Turin, and began his *Delle rivoluzioni d'Italia* (1769-72). In 1777 he pub-

lished anonymously at Florence his *Discorso sull' Impiego delle Persone*, in which he censured the abuses of the monastic system. D. lost his chair through this, and was banished to Revello. In 1782 he accepted the invitation of Frederick the Great and repaired to Berlin, where he wrote *Vie et règne de Frédéric II.* (Berlin), 1788; *La Prusse littéraire sous Frédéric II.* (Berlin), 1790-91; and *Revoluzioni della Germania* (Florence), 1804. In 1804 he published his *Clefs des Langues*, which he dedicated to Napoleon, and was, in consequence, appointed Imperial Librarian at Paris, where he passed the remainder of his life.

Denis, or **Dionysius**, the patron saint of France. He was the first Bishop of Paris, and is supposed to have been put to death about the third century. He was in Paris towards the end of that century, and was ordered to appear before the Rom. governor, and on refusing to give up Christianity was condemned to death. The abbey of St. Denis is built over his burial-place.

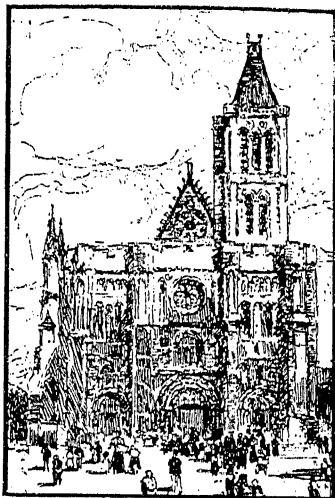
Denis, **Louise Mignot** (1712-90), the niece of Voltaire and his constant companion. She went with him to Berlin, to Geneva, and to Ferney. Voltaire addressed to his niece many of his letters.

Denis, **Maurice**, Fr. painter; b. Nov. 25, 1870, at Granville (Manche). First exhibited in Salon, 1890. Of the Symbolist school. Most of his pictures have religious subjects. He has done much decorative work for churches and for the Champs Elysées theatre. Has written on theory of art, also *Aristide Maillol*, 1925.

Denis, **St.**, a tn. about 5 m. N. of Paris, France, contains a church in which are the tombs of the kings of France. When the martyred St. Denis, Bishop of Paris, according to a legend, walked to this spot from Montmartre with his head in his hand, a chapel was erected over his grave. Joan of Arc dedicated her armour on the altar and here Henry IV. abjured Protestantism. At the Revolution the remains of the kings of France were thrown into a common grave. Napoleon married Marie Louise here. Louis XVIII. caused the bodies of the kings to be replaced and added the remains of Louis XVI. and Marie Antoinette. The finest surviving tombs are those of Dagobert, Louis and Valentine of Orleans, Louis XII. and Anne of Brittany, Francis I. and Claude of France, Henri II. and Catherine de Medici. During the war a great explosion shattered part of the church (March, 1918). An industrial quarter has grown up and the pop. is 79,875.

Denison, a city of Grayson co., Texas, U.S.A., 3 m. S. of Red R., with railway repair shops, mills, oil refineries and wagon works. Pop. 13,850.

Denison, **George Taylor** (b. 1839), Canadian soldier and author, b. in Toronto, called to the Bar, 1861; became a lieutenant-colonel in the active militia, 1866. Served against the Tenian Raid of 1866 and the rebellion of 1885. In 1877 he was appointed police magistrate of Toronto. His principal work, *The History of Modern Cavalry* (1877), is a standard book and has been translated into Russian, German and Japanese. In 1900 he published a volume of reminiscences.



THE CHURCH OF ST. DENIS, NEAR PARIS
(before 1918)

Denison University, a co-educational institution for higher education, founded in Granville, Ohio, in 1831. It has about 1000 students and an income of about 250,000 dollars.

Denizen (through Fr. from Lat. *de intus*, from within), one who obtains through letters patent certain of the privileges of a British subject. When abroad he enjoys the same advantages as a British subject.

Denizli, or **Denizlu**, a tn. of Asia Minor, about 50 m. S. of Alashchir, and connected with Smyrna by rail. It is the trading centre of an important agricultural region, manufacturing textiles; exports barley, opium, cotton and nuts. The ruins of

Laodicea are near by. Pop. about 17,000.

Denka, or **Dinka**, a large tribe of negro people living on both sides of the Nile in the Sudan. The chief source of their wealth is their cattle.

Denman, **Thomas**, first **Baron Denman** (1779-1854) lawyer, was called to the Bar in 1806, and entered parliament twelve years later. He had arrived to such a high position as an advocate in 1820, that Queen Caroline made him her Solicitor-General. In that capacity, with Brougham, who was the queen's Attorney-General, he took an active part in her defence before the House of Lords, and it was these men who compelled the government to withdraw the Bill of Pains and Penalties. D. became Attorney-General in 1830, and was Lord Chief Justice from 1832 until 1850, when ill-health compelled him to resign. He was an able though not a brilliant judge. His biography was written by Sir Joseph Arnould (1873).

Denmark, or **Danmark**, consists of a part of the European mainland (the peninsula of Jutland) and the islands Sjælland (or Zealand), Fünen, Lolland (or Laaland), Falster, Møen, Langeland, the island of Bornholm in the Baltic and several smaller islands. The outlying possessions of D. comprise Farøe Is., Iceland, and the islands of Ste. Croix, St. Thomas, and St. John in the W. Indian Is., and Greenland. Jutland is separated from Norway by the Skager-Rak, and from Sweden by the Kattegat. The islands of Fünen and Zealand make three channels—the Little Belt, the Great Belt, and the Sound, which is the quickest route to the Baltic. The surface of Jutland presents an almost continuous plain, very few feet above sea-level, but the flatness of the landscape is relieved by the gentle slopes of wooded hills. The highest point is Ejler Bavnehøj which reaches a height of about 560 ft. Jutland is thus a part of the great European plain. The W. coast of Jutland is low and sandy, with long spits of sand fringing shallow lagoons. The western coast is thus without adequate harbours, and its shoals and sand-banks are a peril to mariners. The Hornsrev and the Kattegat are the most dangerous points. The Liim Fjord, which is quite unlike the fjords of Norway in character, cuts Jutland in two. The principal fjords and inlets of D. are the Ise-Fjord, Roeskilder-Fjord, Rinkjööbing-Fjord, Apenrade, Flensburg, and Eckernförd. As no inland point in Jutland is more than 50 m. distant from the sea there are no rivers of importance. The Gudenaä, the longest, is only 85 m.

long. There are many small lakes and well-constructed canals, which compensate for the dearth of river transport. The climate of D. is rendered temperate owing to the proximity of the sea on all sides, and resembles that of the E. of Scotland. The cold in the islands in winter is less severe than in Jutland, which is subject to the ravages of the N.W. wind known as the Skai. There are no deposits of coal or minerals of much value in D., except in Bornholm, where coal is mined in small quantities. The western portions of Jutland consist of barren moorland to a great extent, but the eastern division is very fertile and rich in pasturage. More than 75 per cent. of D. is under cultivation, and since the Small-holdings Act of 1899 there are now nearly 14,000 farms. Oats, barley, wheat, and rye are cultivated. Record crops in 1928 made D. prosperous, the product in that year being, in tons, wheat 332,425, rye 245,950, barley 1,100,410, oats 1,059,019, and potatoes 1,172,600. Cattle, sheep, horses, and pigs are reared. Bacon is exported to the extent of 270,000 metric tons a year; butter 148,000; condensed milk 24,000; cheese 6000; and eggs about 600 million. Beet-sugar and margarine are also manufactured. The number of hides obtained in D. has given rise to important leather industries. The fishing industry is increasing in importance and value. Woollen, cotton, and linen goods are manufactured, but mainly for home supply. Paper-making, iron-smelting and porcelain manufactures are thriving industries. D. has a unique situation with regard to commerce. It is the key to the Baltic, and is in a good line of communication with all the chief ports of Europe. The Danes have from very ancient times been a great sea-faring people, and in temperament are well suited for commercial life. The chief exports are butter, canned milk, corn, cattle, horses, sheep, pigs, hides, bacon, pork, paper, gloves; and from Iceland, Greenland, and the Farøe Is., dried fish, eiderdown, feathers, and oil. The chief imports are iron, coal, tobacco, tea, coffee, sugar, and spirits. The Lutheran is the established religion in D., and was introduced in 1536, at which date the church revenue was taken over by the crown. Great tolerance is given to all religious sects, and no political inconvenience is experienced by the heterodox. Education was made compulsory in 1814, and is free. The University of Copenhagen was founded in 1479, and since 1875 admits both men and women stu-

dents, now numbering about 5000. Copenhagen, on the island of Zealand, is the principal town and capital of D. Pop. (1925) including suburbs 731,496. It has many fine public buildings. Elsinore with its strong fortress of Kronberg commands the Sound. Odense is the chief town on the island of Fünen. Aalborg on the Liim Fjord is an important market town and canal front. The state army comprises about 50,000 men. The area of D., including the islands in the

ing the original home of these peoples, and certainly always a religious sanctuary. Pliny gives us our earliest reference to this country, and further references are made in Tacitus. It was from D. and the surrounding neighbourhood that the Anglo-Saxon pirates swooped down on the coasts of Britain and finally made their settlements. In the stories of Beowulf we are able to trace some signs of the Danish royal house and the extent of the Danish dominions, but the facts which we



THE ROYAL PALACE, COPENHAGEN

[D. McLeish

Baltic, is 16,568 sq. m., and the pop. (1925) is 3,434,555. The Faroe Islands, area 540 sq. m., have a pop. of 22,835. Total value of imports (1929) was 1,792 million kroner; exports (1929), of which two-thirds go to Great Britain, 1707 million kroner. For constitution see CONSTITUTION.

History.—The story of D. during the first nine Christian centuries is steeped in the impenetrable mists of saga and legend. We have only the slightest evidences from which to reconstruct a history of the Danes. The Danes claimed origin from Dan, and tradition points to Zealand as be-

gather are themselves obscured by the mists of tradition. We read of a Danish king Harald fighting against the Swedes and dying in battle about the middle of the eighth century, whilst gradually these references to the Danes increase in the annals of the nations of Europe. We find, as they begin to become known as Vikings and sea-robbers, that the Frankish chronicles of the time of Charlemagne make mention of them; whilst during the ninth century the stories of their raids and the deaths of their kings are mentioned as events in the history of Scotland and of Saxony. The history of D., however,

became more authentic towards the beginning of the ninth century. Attempts are made from the great German sees to convert the Danes, their kings begin to be recognised by the other kings of Europe. From about the year 800 almost to the end of the fifteenth century the name of Dane was feared throughout Europe. To the Litany was added the new phrase 'From the fury of the Dane, Good Lord, deliver us.' The Northmen was a term applied generally to the sea rovers who were not all Danes, but who at the commencement of the raids certainly were. The raids of the Viking had undoubtedly the one great result of making the monarchies of Europe feudal. From the reign of Charles the Great to the settlement of

continual disputed successions. With the accession of Valdemar I. D. began to become a really strong and consolidated kingdom. The country was the most fertile and the nearest to Western civilisation of the countries of Scandinavia. This gave it advantages which it was not slow to use. The church also, once it became a national church, did much to help in the consolidation, and D. gradually became the leading nation of the Scandinavian peninsula. Under Valdemar I., Canute VI., and Valdemar II., the nobles fell thoroughly under the influence of feudalism, the people were rich and D. appeared to have a period of great prosperity before it. In 1241 Valdemar II. died, and throughout the thirteenth and four-



BORNHOLM

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Rollo the Dane in France, Europe was disturbed everywhere by the raids of these pirates of the N. During the ninth century many efforts were made to convert the Dane, but it was not until well after the middle of the tenth century that we may regard D. as having been in any sense fully converted. During the tenth century D. tried to extend her territories, parts of Germany were seized, especially the mouths of the rivers. During the reign of Canute the Great the whole Scandinavian peninsula for a time became one, but the attempt to dominate England, started by Sweyn and continued by Canute the Great, failed (1042). The history of D. during the eleventh and twelfth centuries is troublous and complicated. Between the death of Canute the Great and the accession of Valdemar the country was harassed by internal troubles and by

teenth centuries civil war and constitutional struggles continued. The nobles gradually became more powerful than the king. The monarch was shorn of many of his prerogatives. The nobles gained charters, but used their power simply for the increase of their own wealth. On the death of Christopher II. (1332) D. was torn by internal struggles, and was on the point of total disintegration. On the death of Christopher II., Valdemar IV. came to the throne. He re-established the royal power, and crushed the nobility. He had to rebuild the whole strength of the nation, and by careful attention to details he did so. Further, he was by no means despotic: of his own free will he recognised many of the privileges which the nobles and people had obtained during the anarchy, and in 1360 was issued King Valdemar's

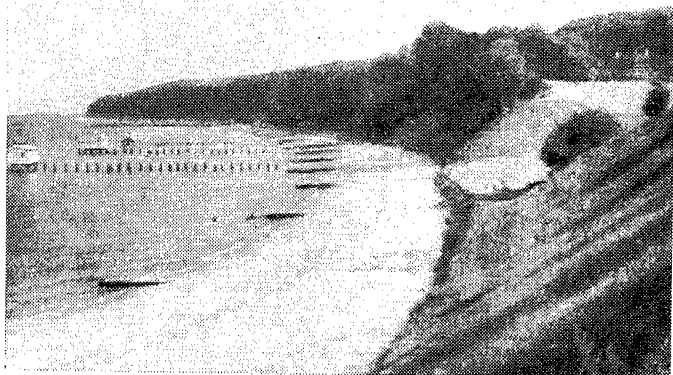
Charter. Under his daughter Margaret the three kingdoms and the peninsula were united by the union of Kalmar. This union benefited only D., and was highly unpopular in the other two countries. Further, it threatened the power of the Hansatic League, with the result that D. found herself involved in a long war with Holstein—the work of the League. In 1439 Eric VII., King of D., was deposed, and Christopher of Bavaria became king. Here it is necessary to notice the great power which the senate and the landlords of D. had obtained, a power which made the senate even more powerful than the monarch, and which delivered the people of D. into practical slavery. A peasant rising merely resulted in the imposition of serfdom. During the fifteenth century the union of the three kingdoms was broken up, although Norway threw in her lot with D., but then, since she was by far the poorest of the three kingdoms and had been practically depopulated by the Black Death, there was little else for her to do. Sweden still for a time was nominally ruled by the Danish kings, and D. was still the leading power of the three kingdoms, but during the early sixteenth century the union received a fatal blow in the massacre by Christian II. at Stockholm. From that time the Swedes were the irreconcilable foes of the union. Christian II., however, attempted to establish a strong and well governed kingdom. This reign coincided with the Reformation in Europe, and finally he was driven into exile, and his uncle, Frederick I., became king. Sweden also at this time was separated forever by the election of Gustavus Vasa to the throne of Sweden. The reign of Frederick I. was a period of transition, but during the reign of his son, Christian III., the Reformation doctrines were definitely established in D. A new church ordinance was drawn up and approved of by Luther, and in 1537 the Danish Church became entirely Protestant. On the whole, although the results after the Reformation at first did not seem to be very great, nevertheless, the results were for the ultimate temporal good of the nation. The revenues of the Church were employed for the good of the nation, the fleet was strengthened, and the power of D. increased. During the sixteenth century D. was one of the Great Powers of Europe, and we may well regard the reigns of Frederick II. and Christian IV. as the period of D.'s greatest power.

The accession of Christian IV. marks a period which may be aptly termed transitional. The power of

the king, although nominally very great, was in reality limited by the liberties and privileges of the nobility, and by the increasing 'liberal' tendencies of the burghesses. The peasant, once a small-holding tenant, was rapidly becoming a serf. D. was still, above all else, a great Scandinavian power, and she still possessed Norway. This led her into continual disputes with Sweden and also with the maritime nations, Holland and England, who coveted the North Sea fisheries. Before the end of the reign D. had begun to lose to Sweden some of her territories, and from that time her possessions continually grew smaller until they assumed the present proportions. During this reign also, the power of the crown gradually decreased: but the hatred of the power of Sweden had increased. The next king, Frederick III., although still further shorn of his royal powers, was nevertheless imbued with an idea of winning back the lost territories. In this he was steadfastly supported by his people, and finally, when Charles X. seemed to be surrounded by insuperable difficulties in Poland, D. rushed to war. They were beaten and crushed by the Swedes, the last campaigns of this war forming one of the most dramatic episodes of the history of war, and D. was forced to sign a disastrous peace at Roskilde in 1658. This was followed by a second war with Sweden, and this time the terms of the treaty were rather easier for D. much that she had given up was restored, but the dominion of the N. passed out of her hands for ever. The war had the further result of removing the privileges from the nobles, and finally after much intrigue and a threatened *coup d'état*, Frederick III. succeeded in forcing the Raad to recognise him as an hereditary monarch. By means of further intrigue he was able to establish himself as an absolute monarch. The change was on the whole beneficial to D. and of vast importance to Norway, which became prosperous and more energetic. During the reign of Christian V., and under the wise diplomacy of the Chancellor Griffenfeldt, D. seemed likely to become again a great European Power. The ambitions of France and the alliance of that country with Sweden gave D. her opportunity. The chancellor played his hand with skill, and it was not until Sweden openly attacked Prussia that D. came definitely into the field as the opponent of the French and Swedes. The fall of Griffenfeldt in 1676, however, paved the way for the humiliation of D., and the peace made in 1679 did not benefit D. at all, although on her had

fallen the brunt of battle. During the early part of the eighteenth century she played an important part in the Northern War, in which Sweden, Hanover, and Prussia were involved, only to find at the end of it that Prussia and Hanover benefited by her territorial conquests, while she had to remain satisfied with financial compensation. For a time the country remained at peace, and a beginning was made to attempt to end serfdom in D. During the eighteenth century it was mainly questions of land tenure and agriculture that troubled the Danish statesmen. Attempts had been made to bring about relief by abolishing such services as militia

close adherence to this policy and to the domination of Russia that resulted in two breaches with England. In 1800 the Armed Neutrality of the N. threatened the power of England. Prussia, Sweden, and Russia leagued themselves together, and the latter power practically forced the acquiescence of D. It became necessary to detach D., and so Parker and Nelson sailed for Copenhagen, where the Danish fleet was destroyed and the fortifications dismantled. The second breach was caused by Napoleon's desire to close the harbours of the N. to British trade. D. desired to remain neutral and resolved to attack even France if she could not remain



AARHUS

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service, but the price of corn still continued to fall and the peasantry still continued to emigrate. For a time reactionary measures were tried, and these for a short time had the desired effect. Effects were made to restore the trading prosperity of the nation, and these not without success. Treaty after treaty was signed which gave D. great trading privileges, but still the agricultural affairs at home did not improve. Under the Bernstorffs affairs improved, and before the end of the century D. had declared the importation of corn to be free and had practically emancipated her peasantry. The foreign policy of the century may be summed up in the word 'neutrality,' and by studiously remaining firm to this policy she was enabled to steer clear of all the wars which Europe waged during this period. But it was also a

neutral, but an English fleet was dispatched to take possession of the Danish fleet, and at the same time to offer her very generous terms. D. was prepared to be courted, but not to be coerced. The result was England took by force what she could not obtain by diplomacy, and D. became an ally of Napoleon and remained staunch to the end of the war. In 1814, by the Treaty of Kiel, she lost Norway to Sweden, and in the following year, as Duke of Holstein, the Danish king joined the German confederation, but refused to allow Schleswig to become a member of it, since it formed part of the Danish kingdom. The position of D. during the period immediately following the great war was one of great poverty and distress. Essentially an agricultural country, the falling price of corn impoverished her, and the loss of

Norway, although to a certain extent a relief, was by no means as great a relief as it seemed. During this period we also find the beginnings of the Schleswig-Holstein question, one party advocating complete separation of the duchy and incorporation with Germany, the other complete absorption into D. In 1851, after the question had led to the intervention of Prussia, D. was forced to agree to a constitution by which Holstein was governed by a commission consisting of German, Austrian, and Danish representatives. In 1849 D. received a new constitution. The question of Schleswig-Holstein still, however, played the main part in the foreign affairs of D. Constitution after constitution was experimented with and failed, and finally, in 1864, war broke out between Austria and Prussia and D. The war was of short duration, and D. found herself shorn of Schleswig-Holstein, the booty being the cause of the later war between Austria and Prussia. The loss of Schleswig entailed a revised constitution promulgated in 1866. For nineteen years D. was governed by Estrup despite parliamentary opposition. In 1894 he was forced to retire, and the Conservative and Democratic parties struggled for supremacy. In 1906 King Christian IX. died and was succeeded by his son, Frederick VIII. Frederick continued his father's policy of upholding parliament, but the event in political affairs in D. which has called for most comment, however, was the resignation of the minister Alberti in 1908, after he had held office for over seven years. He was sentenced to penal servitude for embezzlement. In 1912 Frederick VIII. died suddenly, and his son, Christian X., became king. In 1915 Christian signed a revised constitution (see under CONSTITUTION), as the Upper House was at last forced to pass a Reform Bill putting its powers on a more democratic basis. During the Great War D. succeeded in maintaining her neutrality, and by the Treaty of Versailles it was decided to settle the Schleswig question by plebiscite. In 1920 N. Schleswig voted for D. by 75,431 votes to 25,329, and was incorporated with D. under the name S. Jutland Provinces. D. has since been occupied with economic stabilisation, and the Social-Democratic Party came into power in 1924. The independence of farmers was guaranteed by a law increasing the size of small holdings but prohibiting amalgamation. Prosperity has come from the land, and by 1927 the stabilisation of the currency was complete. Repeated attempts have been made in parliament to effect

disarmament, not as yet successful. D. entered the League of Nations in 1920.

Danish Language and Literature.—Danish began to develop into a specific language about the eleventh century A.D., when it formed the south-eastern branch of the old Scandinavian speech. During the two following centuries it became differentiated from other Scandinavian dialects by certain vowel and consonant changes, including the substitution of single long vowels for diphthongs, and the loss of initial *h* before *i*, *n*, and *r*, which took place about this time. In the early fourteenth century it is evident from several collections of laws, that there existed three dialects—of Skåne, of Zealand, and of Jutland. The first approached most nearly to the old language, whereas the second was ultimately adopted as the literary language of Denmark. The levelling of inflections began as early as the fourteenth century, and continued throughout the fifteenth and sixteenth. This period in the history of the language was also marked by the introduction of numerous foreign words. Owing to the necessities of commercial intercourse, many Low Ger. words were borrowed, and Latin, which was the language of the cultured writers, had considerable influence on Danish. After 1537 Danish was used for about a century as the official language of Norway. The Danish translation of the Bible appeared in 1550, but it was not till Holberg (1684-1754) that the literary expression of the language became in any way fixed. During the eighteenth century Ger. and Danish were used equally in Denmark, the former being the language of the gov. This fact accounts for the large proportion of Ger. words in the Danish vocabulary. At the beginning of the nineteenth century there was a revival of interest in old Scandinavian literature, and as a consequence many Ger. words were replaced by old Danish equivalents. Danish is spoken by educated Norwegians, whose intonation is somewhat harsher than that of the Danes. It is the softest of the Scandinavian languages, and as spoken is characterised by a slurring indistinctness. The spelling is still unfixed, the official orthography of gov. publications being disregarded by writers. The standard dictionary is that of Molbech, *Dansk Ordbog*, 1854-59. A comprehensive Danish Dictionary is being compiled under the auspices of the Danish Association of National Language and Literature. Ferral, Lepp, and Rosing's *Danish and English Dictionary* (7th ed.), 1899,

and Brynildsen's *English-Dano-Norwegian Dictionary* (1900), are useful for English students. For the history of the language, consult Molbech (1846), and Verner Dahlerup (1896); and, for grammar, Möbius (1871).

The written language of the Danes during the Middle Ages was Latin and in consequence their early literature was singularly undeveloped. The only prominent writer of the twelfth century was Saxo Grammaticus, who wrote his *History of Denmark (Historica Danica)* in Latin. After the Runic monuments, Danish writings deal with church and civil law, the earliest being the laws of Skane (1160). The popular chivalric ballads *Kjaempeviser* were probably composed and recited as early as the eleventh century, but have come down to us in a sixteenth century form, the earliest collection being that of Vedel (1591). There were many verse chronicles, the most important being a free translation of Saxo, *Rimkrønike* (first printed edition, 1495). The University of Copenhagen was established in 1479, and printing was introduced in 1495. Christian Pedersen, 'the father of Danish literature,' set up a printing press at Malmo, translated the Bible (1550), and put the legend of Charlemagne into literary form. Unfortunately, Danish was not regarded as the national language, Ger. being spoken by the wealthy and educated classes after the death of Frederick I. (1533), and consequently the 'Revival of Learning,' out of which sprang up a glorious epoch in English literature, had little influence on Danish production. To this period belong Tausen, Kingö, and Arrebo, writers of hymns and verse-translations of the Psalms. The first national history written in Danish was by Hvittfeld (1595); the first drama by Ranch, a few years later.

The first great writer in Danish literary history is the Norwegian Holberg (1684-1754), a writer of humorous comedy and satire, of history and of philosophy. Through his stimulating influence, prose writing was reformed. Tullin (1728-65), another Norwegian, put new life into the national poetry. A young poet, Johannes Evald (1743-81), dissatisfied with the Ger. models then in vogue, did his utmost to arouse a national interest in Scandinavian mythology. Wessel (1742-85) satirised the stilted contemporary drama, modelled on the Fr. classic plan, in his comedy *Kjerlighed uden Strømper*. His contemporaries, Brun, Friemann, Fasting, and Storm, helped to free Danish from some conventionalities, and enriched the language by

their imagery. These men, all Norwegian by birth, formed a 'Norwegian Society' at Copenhagen whose object it was to awaken public interest in national literature, thus foreshadowing the romantic revival of the next century. The writers of the early nineteenth century were mainly polemical prose writers. They include Rahbek (1760-1830), a critic and novelist; Heiberg (1758-1841), a political controversialist; Malte Brun (1775-1826), a geographer; Mynster (1775-1854), a theologian; and Oersted (1777-1851), a scientist. This period, however, brought forth the dramatists Samsö and Sander, and was fortunate in Jeus Baggesen (1724-1826), the author of *Labyrinther*, a poet and humorist.

The Romantic Revival in Denmark began with the work of Adam Ohlenschläger (1779-1850), a lyrical and dramatic writer of great power, regarded by many as Denmark's finest poet. He was largely influenced by the so-called romantic writers of Eng. and Ger., and evoked in his disciples a similar enthusiasm for their own national literature. To the new school belonged Schack-Staffeldt (1796-1826), a Ger. by birth; Grundtvig (1783-1872), an antiquarian and poet, who re-created the old Norse myths for his countrymen; J. L. Heiberg, a critic, dramatist, and poet, and his great mother, the Countess Gyldenbourg-Ehrensvard; and J. C. Hauch (1790-1872), a dramatist, critic, and novelist of the psychological school. Among a slightly younger generation are: Hans Andersen (1805-75), whose *Fairy Tales* are known throughout the nurseries of the world, and Paludan-Müller, the author of the great philosophic epic *Adam Homo* (1841-48). Ingeman (1789-1862), among the foremost of the novelists, owed much to the romantic novels of Scott. The chief antiquarians were Rask, Rafu, and Petersen; Finn Magnussøn (1791-1846) made a most scholarly study of mythology, and Thomsen (1785-1865) and Worsaae (1821-85) of archæology. The early nineteenth century possessed many great philosophic thinkers, among whom should be noted Martensen (1808-84), a writer on theology and ethics; Sibbern (1785-1872); and Kier Kegaard, a most original and stimulating writer. The early nineteenth century was also marked by the interest shown in scientific research, the most prominent scientists being Oersted (1777-1851), who discovered electro-magnetism; Forchhammer (1794-1864), a geologist; and Steenstrup (1813-97), a zoologist; and

an authority on the kitchen-middens of Denmark.

The Ger. War of 1848-50 aroused tremendous patriotic enthusiasm, but the Romantic movement was almost dead, for public interest was absorbed in political questions of the day. The chief writers of the mid-century were the poets Plong (1813-94) and Molbech (1821-88), and the novelist Goldschmidt (1819-97). The most prominent figure of modern times is Georg Brandes (b. 1842), who inaugurated what is known as the cosmopolitan reaction. He wrote and spoke against national segregation, concerning himself entirely with the great currents of European thought. At first his teaching was met with a storm of opposition, but he has now many adherents, the most distinguished of whom have been Jacobsen (1847-85); Holgar Drachmann (1846-1908); Edvard Brandes (b. 1847), the dramatist and brother of the critic; Esmann (1860-1904); K. Gjellerup (1857-1919); Karl Larsen (b. 1860); and Peter Nansen (1861-1918). The new school delighted for the most part in the exotic, and their treatment was objective; their followers have accordingly been called 'Naturalists.' In the late 'eighties, a reaction against naturalism, as expounded by Brandes, became evident in the writings of Drachmann, universally acknowledged as a poet of the first rank. In a few years he was joined by Gjellerup and a new romantic school has developed side by side with the older naturalistic school. Among the more notable of the reactionists are: Fons (b. 1853), Hendrick Pontoppidan (b. 1857). Johannes Jorgensen (b. 1866) was an admirer of Brandes, but later became influenced by the Fr. Symbolists. In 1896 he became a Rom. Catholic and separated himself definitely from the Naturalists. His best work is in his poetry, *Flowers and Fruit*, 1907, and other collections of verse and in his travel-books. Other Neo-Romanticists, friends of Jorgensen, are Viggo Stuckenberg (1893-1905), whose best work was in his poems, and Sophos Claussen (b. 1865), a lyric poet whose work is good but less popular in

Denmark. He is a Symbolist, believing symbolism to be intuitional and naturalism analytical and rational. Other writers of the time are Ludvig Holstein (b. 1864), a nature poet, Helgerode (b. 1870), a dramatist and Symbolist poet, Neils Möller (b. 1859) whose poetry is powerful and austere, Sophos Michaelis (b. 1865), Karl Larsen (b. 1860), and Gustav Wied (1858-1914). After 1900 there was some reaction against the individualistic symbolist movement, and a literature of the soil came into being. Johan Skjoldborg (b. 1861) and Jeppe Aakjaer (b. 1866) are both important peasant writers. The most distinguished writer at the present time is Johannes v. Jensen (b. 1873). He has written novels, short stories and travel sketches. Other writers are Jakob Knudsen (1858-1917), novelist and thinker, Marie Bregandahl (b. 1867), Harry Soiberg (b. 1880), Knud Hjørto (b. 1869), Harald Kidde (1878-1918), Aage von Kohl (b. 1877), Gyrithe Lemche (b. 1866), Karin Michaelis (b. 1872). The most interesting dramatist is Sven Lange (b. 1868), and the poets are Valdemar Rørdam (b. 1872), Kal Hoffman (b. 1874), Olaf Hansen (b. 1870), L. C. Neilsen (b. 1871) and Christian Rimestad (b. 1878). The chief works of most of these modern authors have been translated into Eng. Mention must be made of the great Danish philologist, Otto Jespersen (b. 1860), whose work, however, has been devoted to a study of the Eng. language.

Consult Horn, *Den danske Literatur Historie*, 1879; Overskon, *Den danske Skueplads i dens Historie*, 1859-74; Hansen, *Illustreret dansk Literatur-historie*, 1900; Ronning, *Den danske Literaturshistorie i Grundrids*, 1890; Andersen, *Danske Studier*, 1893; Christensen, *Haandbog i Dansk Literatur* (2 vols.), 1893-95; G. Brandes, *Ludvig Holberg og hans Tid*, 1884, and *Dansk Skuespil-kunst*, 1880; Weitemeyer, *Denmark: its Language and Literature*, 1891; Goase, *Studies in the Literature of Northern Europe*, 1879; Bovesen, *Essays on Scandinavian Literature*, 1898; H. G. Topsøe-Jensen, *Scandinavian Literature*, 1929.

